AIWA®

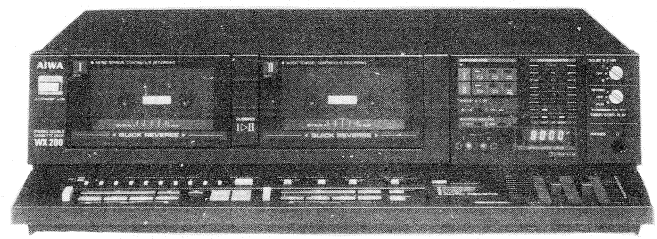
S/M Code No. 85-034
DATE OF ISSUE 7/1985

SERVICE MANUAL

MODEL NO.

STEREO DOUBLE CASSETTE DECK

AD-WX200 WX20



TYPE HB, CB, EB, KB, GB, ZB (AD-WX200),

SPECIFICATIONS

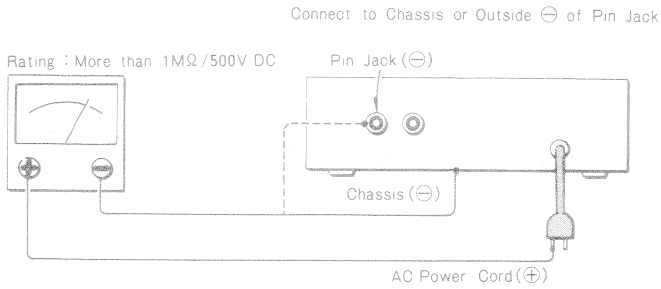
Type	Stereo cassette tape deck
Track format	4 tracks 2 channels
Power supply	**AD-WX200E, Z** AC 220 V, 50/60 Hz **AD-WX200K, G** AC 240 V, 50/60 Hz **AD-W20U, AD-WX200C** AC 120 V, 60 Hz **AD-WX200H** AC 120 V/220 V/240 V switchable, 50/60 Hz
Power consumption	32 W
Frequency response	METAL tape: 20 – 16,000 Hz CrO_2 tape: 20 – 15,000 Hz NORMAL tape: 20 – 14,000 Hz
Signal-to-noise ratio	73 dB (METAL tape DOLBY C NR ON)
Wow and flutter	According to DIN 45 500 0.18% 0.06% (WRMS)
Tape speed	4.8 cm/sec. (1-7/8 ips), 9.5 cm/sec (Dubble speed)
Rewind time	90 sec. (C-60)
Fast forward time	90 sec. (C-60)
Recording system	AC bias (frequency 100 kHz)
Erase system	AC erase
Motor	DC Servomotor × 2, DC motor × 2
Heads	Playback head: SH head Record/playback head: DX head Erase head: Double-gap ferrite head
Inputs	LINE IN maximum input sensitivity: 50 mV (over 50 k Ω)
Outputs	LINE OUT standard output level: 380 mV (0 VU); suitable load impedance: over 50 k Ω; Headphones: 8 Ω
Dimensions	420(W) × 110(H) × 317(D) mm
Weight	5.6 kg
Accessories	Stereo pin cord (2)

- Design and specifications are subject to change without notice.
- Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.
- Dolby and the □□ symbol are trademarks of Dolby Laboratories Licensing Corporation.

Follow the instructions carefully, which will allow the user to optimise the products' performance and give many years of serivce.

1. **No scratch and melting shall be made to covered lead-wires of an a.c. primary circuit including mains leads.**
2. **No illegibility shall be given to the specification plate, the caution labels, the fuse labels and others.**
3. **When, on pattern sides of circuit boards, additional repair-parts have been made up, the parts shall be firmly glued to circuit boards or other components, unless the parts can be attached firmly.**
4. **The following matters shall be maintained as they are, when repairing.**
   1) Soldering of lead-wire ends
      * Care should be taken of the space distance in an a.c. primary circuit as well as soldering.
   2) Wiring and holding of lead-wires with wire-clips and binders
   3) Materials of lead-wires
      * e.g.; For UL models, lead-wires to be used shall be approved or accepted by the UL.
   4) Location of all kinds of insulators
   5) Setting of voltage selector switch
      * Set the Voltage Selector Switch to 240V, 220V, or 120V, According to your Local Voltage.
5. **After repaired, the insulation resistance or leakage current shall be measured with 500 ± 5V D.C and shall be not less than 1MΩ.**

Measuring Point



6. **General instructions for mechanism repair**
   1) The heads, capstan and pinch roller shall be cleaned of good quality alcohol after repaired, because dirty heads shall cause distorted sounds while dirty capstan and pinch roller shall occur wow/flutter and take-up fault.
   2) Lubricants been stained the surfaces of transmitting portion of the belts, idlers, capstan and pinch roller shall be removed, because slippery and faulty tape travel shall be caused.
   3) When oiling, only one or two drops shall be applied so as not to run over and be dispersed. Note should be taken of the metal fitting for the capstan and rotating portions of the idlers and pinch roller, especially.
   4) E-rings and poly slider washers shall be replaced with new ones, if once those have been removed. — No re-utilization due to unreliability.
   5) Regular spare-parts shall always be used for repair, because using irregular parts and tampering with the products shall cause deterioration, mulfunction and damage.

·ONE-POINT ADVICE

To remove the mechanism easily, push the illustrated position by which the azimuth adjusting screw may be caught.

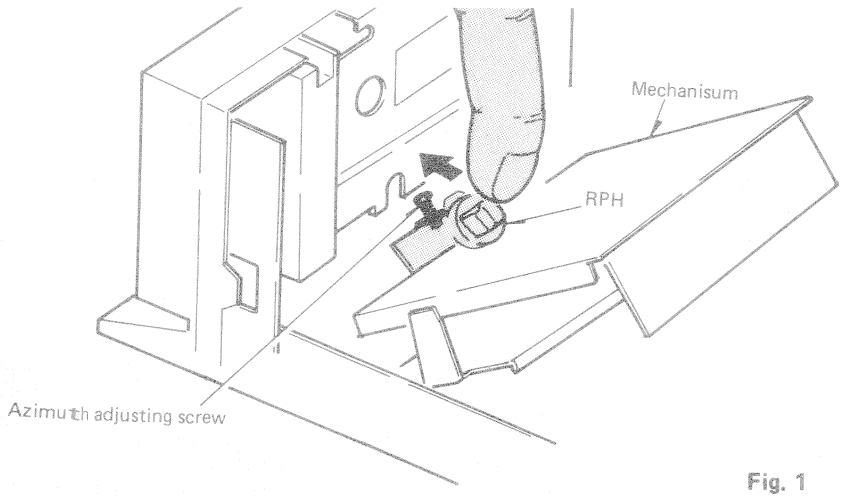


Fig. 1

ELECTRICAL MAIN PARTS LIST

- +++ mark denotes a component of assembled part which part code is represented by a previously stated component.
- ★ -mark means less required items and availabilities may be limited.

CAPACITORS No mark, U, UF: μF P, PF : pF
COILS MMH: mH UH : μH
FUSE MMA: mA

Ref. No.	Part No.	Description
	=== IC ===	
	87-020-454	IC,DM6851
⏚	82-104-601	IC,HD38702A37
	87-020-489	IC,IR2E19
	87-020-261	IC,LA6358S
⏚	82-104-602	IC,LM6402-596
⏚	82-104-603	IC,LM6402-597
⏚	82-104-699	IC,LM6413E-1860
	87-020-140	IC,L78M12
	87-020-096	IC,M4066BP
	87-020-157	IC,M5210L
	87-027-895	IC,M5218L
	87-027-827	IC,TC4069UBP
	87-020-438	IC,TD62504P
	87-027-538	IC,UPD-4069
	=== TRANSISTOR ===	
	89-109-521	TRANSISTOR,2SA952K
	89-110-155	TRANSISTOR,2SA1015,GR
	89-113-584	TRANSISTOR,2SA1358Y
	89-206-051	TRANSISTOR,2SB605K L
	89-206-415	TRANSISTOR,2SB641,S
	89-412-763	TRANSISTOR,2SC1276QP
	89-318-155	TRANSISTOR,2SC1815,GR
	89-320-011	TRANSISTOR,2SC2001K
	89-405-711	TRANSISTOR,2SD571,K
	89-412-753	TRANSISTOR,2SD1275
	89-413-023	TRANSISTOR,2SD1302S
	=== MAIN CIRCUIT BOARD SECTION ===	
PCB-A	*	MAIN CIRCUIT BOARD
C3	* 87-018-036	CAP,CERA-SOL S 220P
C4	* 87-018-036	CAP,CERA-SOL S 220P
C5	* 87-018-032	CAP,CERA-SOL S 100P
C6	* 87-018-032	CAP,CERA-SOL S 100P
C7	* 87-015-954	CAP,ELECT LL 10-16V
C8	* 87-015-954	CAP,ELECT LL 10-16V
C19	* 87-018-047	CAP,CERA-SOL S 0.01Y/16
C20	* 87-018-047	CAP,CERA-SOL S 0.01Y/16
C21	* 87-015-698	CAP,ELECT 4.7-50
C22	* 87-015-698	CAP,ELECT 4.7-50
C31	* 87-018-047	CAP,CERA-SOL S 0.01Y/16
C34	* 87-018-044	CAP,CERA-SOL S 1000P
C36	* 87-018-047	CAP,CERA-SOL S 0.01Y/16
C51	* 87-018-047	CAP,CERA-SOL S 0.01Y/16
C65	* 87-015-954	CAP,ELECT LL 10-16V
C66	* 87-015-954	CAP,ELECT LL 10-16V
C403	* 87-014-115	CAP,PP 0.0056G
C411	* 87-010-060	CAP,ELECT,100-16
C414	* 87-014-061	CAP,PP 1500PF
C454	* 87-014-061	CAP,PP 1500PF
C601	* 87-018-047	CAP,CERA-SOL S 0.01Y/16
C602	* 87-018-047	CAP,CERA-SOL S 0.01Y/16
C603	* 87-010-411	CAP,ELECT 1000-50V
C605	* 87-010-437	CAP,ELECT 1000-50V (U,C,E,K,G,Z MODELS)
C611	* 87-018-047	CAP,CERA-SOL S 0.01Y/16
C804	* 87-010-237	CAP,ELECT 1000-16(SR)
C805	* 87-010-237	CAP,ELECT 1000-16(SR)
C806	* 87-010-237	CAP,ELECT 1000-16(SR)
C807	* 87-010-237	CAP,ELECT 1000-16(SR)
C816	* 87-018-044	CAP,CERA-SOL S 1000P
D1	87-020-110	DIODE 1SS177
D2	87-020-110	DIODE 1SS177
D31	87-020-110	DIODE 1SS177
D51	87-020-110	DIODE 1SS177
D52	87-020-110	DIODE 1SS177
D53	87-020-110	DIODE 1SS177
D54	87-020-095	DIODE MC921
D55	87-020-110	DIODE 1SS177
D101	87-020-110	DIODE 1SS177
D102	87-020-110	DIODE 1SS177
D251	87-027-475	DIODE,ZENER HZ-6B1
D301	87-027-475	DIODE,ZENER HZ-6B1
D601	87-020-025	DIODE 2B4B41,LC-2
D602	87-020-123	DIODE DS446
D603	87-020-123	DIODE DS446
D604	87-027-455	DIODE S2V10,F
D606	87-027-365	DIODE S5277B
D607	87-020-110	DIODE 1SS177
D801	87-020-110	DIODE 1SS177
D802	87-020-123	DIODE DS446
D803	87-020-123	DIODE DS446
D804	87-020-123	DIODE DS446
D805	87-020-123	DIODE DS446
D806	87-020-110	DIODE 1SS177
D807	87-020-123	DIODE DS446
D808	87-020-123	DIODE DS446
D811	87-020-110	DIODE 1SS177
D813	87-020-110	DIODE 1SS177
D817	87-020-110	DIODE 1SS177
D818	87-020-110	DIODE 1SS177
D819	87-020-110	DIODE 1SS177
D820	87-020-110	DIODE 1SS177
D821	87-020-110	DIODE 1SS177
D823	87-020-110	DIODE 1SS177
D826	87-020-110	DIODE 1SS177
D827	87-020-110	DIODE 1SS177
D829	87-020-110	DIODE 1SS177
D830	87-020-110	DIODE 1SS177
D832	87-020-110	DIODE 1SS177
D841	87-020-110	DIODE 1SS177
D842	87-020-110	DIODE 1SS177
D843	87-020-110	DIODE 1SS177
D844	87-020-110	DIODE 1SS177
D845	87-020-110	DIODE 1SS177
D846	87-020-110	DIODE 1SS177
D847	87-020-110	DIODE 1SS177
D848	87-020-110	DIODE 1SS177
D851	87-020-110	DIODE 1SS177
J1	87-049-301	JACK PLATE ASSY (LINE IN/REC,LEFT)
J2	+++	JACK PLATE ASSY (LINE IN/REC,RIGHT)
J3	+++	JACK PLATE ASSY (LINE OUT/PLAY,LEFT)
J4	+++	JACK PLATE ASSY (LINE OUT/PLAY,RIGHT)
L1	* 82-196-603	COIL,TRAP,100KHZ
L2	* 82-196-603	COIL,TRAP,100KHZ
L201	82-198-715	MPX FILTER
L202	82-198-715	MPX FILTER
L251	* 82-196-603	COIL,TRAP,100K
L252	* 82-196-603	COIL,TRAP,100K
L301	* 82-196-603	COIL,TRAP,100K
L302	* 82-196-603	COIL,TRAP,100K
L401	* 82-104-642	COIL OSC,1
L411	* 82-104-643	COIL OSC,2
L412	* 87-003-051	CHOKE COIL 470 UH
L451	* 82-104-643	COIL OSC,2
L452	* 87-003-051	CHOKE COIL 470 UH
L801	* 82-189-642	COIL,OSC LM6400
LED601	* 87-027-542	LED,LN217RP
⚠R405	, 87-029-067	RES,FUSIBLE,1/4W-4.7
⚠R603	, 87-029-366	RES,FUSIBLE 1/2W-4.7
⚠R607	, 87-029-083	RES,FUSIBLE,1/2W-10
R813	* 87-025-085	RES,MF 68-2W
R814	* 87-025-085	RES,MF 68-2W
R815	* 87-025-085	RES,MF 68-2W
R816	* 87-025-085	RES,MF 68-2W
RA801	* 82-146-611	RES,ARRAY 47KX9
RA802	* 82-104-619	RES,ARRAY 47KX12
RA803	* 82-104-618	RES,ARRAY 47KX11
RA804	* 82-146-611	RES,ARRAY 47KX9
RA805	* 82-146-611	RES,ARRAY 47KX9
RA806	* 82-104-617	RES,ARRAY 47KX8
RA807	* 82-146-613	RES,ARRAY 47KX7
RY1	* 87-045-237	RELAY,GSA-237P 12VDC
RY2	* 87-045-237	RELAY,GSA-237P 12VDC
SFR1	* 87-021-738	SFR 1K
SFR2	* 87-021-738	SFR 1K
SFR3	* 87-021-743	SFR 22K
SFR4	* 87-021-743	SFR 22K
SFR5	* 87-021-743	SFR 22K
SFR6	* 87-021-743	SFR 22K
SFR411	* 87-021-746	SFR 100K
SFR412	* 87-021-746	SFR 100K
SFR451	* 87-021-746	SFR 100K
SFR452	* 87-021-746	SFR 100K
	=== KEY SWITCH CIRCUIT BOARD SECTION ===	
PCB-B	*	KEY SWITCH CIRCUIT BOARD
D701	87-020-110	DIODE 1SS177
D702	87-020-110	DIODE 1SS177
D703	87-020-110	DIODE 1SS177
D704	87-020-110	DIODE 1SS177
D705	87-020-110	DIODE 1SS177
D706	87-020-110	DIODE 1SS177
D707	87-020-110	DIODE 1SS177
D708	87-020-110	DIODE 1SS177
D709	87-020-110	DIODE 1SS177
D710	87-020-110	DIODE 1SS177
D711	87-020-110	DIODE 1SS177
D712	87-020-110	DIODE 1SS177
D713	87-020-110	DIODE 1SS177
D714	87-020-110	DIODE 1SS177
D715	87-020-110	DIODE 1SS177
D716	87-020-110	DIODE 1SS177
D717	87-020-110	DIODE 1SS177
D721	87-020-110	DIODE 1SS177
D722	87-020-110	DIODE 1SS177
D723	87-020-110	DIODE 1SS177
D724	87-020-110	DIODE 1SS177
D725	87-020-110	DIODE 1SS177
D726	87-020-110	DIODE 1SS177
D727	87-020-110	DIODE 1SS177
D728	87-020-110	DIODE 1SS177
D729	87-020-110	DIODE 1SS177
D730	87-020-110	DIODE 1SS177
D731	87-020-110	DIODE 1SS177
D732	87-020-110	DIODE 1SS177
D734	87-020-110	DIODE 1SS177
D735	87-020-110	DIODE 1SS177
D736	87-020-110	DIODE 1SS177
D737	87-020-110	DIODE 1SS177
D738	87-020-110	DIODE 1SS177
LED701	* 87-020-093	LED LN222RP (REC MUTE,DECK1)
LED702	* 87-020-092	LED LN422YP (PAUSE,DECK1)
LED703	* 87-020-091	LN322GP (REV PLAY,DECK1)
LED704	* 87-020-091	LN322GP (PLAY,DECK1)
LED705	* 87-027-772	LED GL-9PR4 (HIGH)
LED706	* 87-027-772	LED GL-9PR4 (NORMAL)
LED707	* 87-020-091	LED LN322GP (REV PLAY,DECK2)
LED708	* 87-020-091	LED LN322GP (PLAY,DECK2)
LED709	* 87-020-092	LED LN422YP (PAUSE,DECK2)
LED710	* 87-020-093	LED LN222RP (REC MUTE,DECK2)
LED711	* 87-020-093	LED LN222RP (RECORD,DECK2)
LED715	* 87-020-093	LED LN222RP (1)
LED716	* 87-020-093	LED LN222RP (2)
LED717	* 87-020-093	LED LN222RP (3)
LED718	* 87-020-093	LED LN222RP (4)
LED719	* 87-020-093	LED LN222RP (5)
LED720	* 87-020-093	LED LN222RP (6)
LED721	* 87-020-093	LED LN222RP (7)
LED722	* 87-020-093	LED LN222RP (8)
LED723	* 87-020-093	LED LN222RP (9)
LED725	* 87-020-092	LED LN422YP (TAPE SIDE A)
LED726	* 87-020-092	LED LN422YP (TAPE SIDE B)
LED727	* 87-020-091	LED,LN322GP (MS,DECK1)
LED728	* 87-020-092	LED LN422YP (PMS,DECK1)
S701	87-031-771	TACT SW,EVQ-QSK04M (REC MUTE,DECK1)
S702	87-031-771	TACT SW,EVQ-QSK04M (PAUSE,DECK1)
S703	87-031-771	TACT SW,EVQ-QSK04M (STOP,DECK1)
S704	87-031-771	TACT SW,EVQ-QSK04M (MS,DECK2)
S705	87-031-771	TACT SW,EVQ-QSK04M (MS,DECK2)
S706	87-031-771	TACT SW,EVQ-QSK04M (STOP,DECK2)
S707	87-031-771	TACT SW,EVQ-QSK04M (REV PLAY,DECK2)
S708	87-031-771	TACT SW,EVQ-QSK04M (PLAY,DECK2)
S709	87-031-771	TACT SW,EVQ-QSK04M (PAUSE,DECK2)
S710	87-031-771	TACT SW,EVQ-QSK04M (REC MUTE,DECK2)
S711	87-031-771	TACT SW,EVQ-QSK04M (RECORD,DECK2)
S715	87-031-771	TACT SW,EVQ-QSK04M (1)
S716	87-031-771	TACT SW,EVQ-QSK04M (2)
S717	87-031-771	TACT SW,EVQ-QSK04M (3)
S718	87-031-771	TACT SW,EVQ-QSK04M (4)
S719	87-031-771	TACT SW,EVQ-QSK04M (5)
S720	87-031-771	TACT SW EVQ-QSK04M (6)
S721	87-031-771	TACT SW EVQ-QSK04M (7)
S722	87-031-771	TACT SW EVQ-QSK04M (8)
S723	87-031-771	TACT SW EVQ-QSK04M (9)
S725	87-031-771	TACT SW EVQ-QSK04M (TAPE SIDE)
S726	87-109-614	PUSH SW (MS SELECTOR)
S727	87-031-771	TACT SW EVQ-QSK04M (BACK SKIP)
S728	87-031-771	TACT SW EVQ-QSK04M (REV PLAY,DECK1)
S729	87-031-771	TACT SW EVQ-QSK04M (PLAY,DECK1)
S730	87-031-771	TACT SW EVQ-QSK04M (FWD SKIP)
S731	87-031-802	SLIDE SW 2-2-3 SSS (REVERSE MODE 1)
S732	87-031-802	SLIDE SW 2-2-3 SSS (REVERSE MODE 2)
S733	87-031-873	SLIDE SW-SSS-322 (BLANK SKIP)
S734	87-031-802	SLIDE SW 2-2-3 SSS (REC MODE)
S735	87-031-771	TACT SW EVQ-QSK04M (COUNTER RESET)
S741	87-031-771	TACT SW EVQ-QSK04M (SYNC DUBB H)
S742	87-031-771	TACT SW EVQ-QSK04M (SYNC DUBB N)
	=== REC. AMP. CIRCUIT BOARD SECTION ===	
PCB-C	*	REC. AMP. CIRCUIT BOARD
D401	87-020-110	DIODE 1SS177
D402	87-020-110	DIODE 1SS177
L253	* 87-005-242	MICRO INDUCTOR 5.6MMH

Description
SS177
22RP (REC MUTE,DECK1)
22YP (PAUSE,DECK1)
(REV PLAY,DECK1)
(PLAY,DECK1)
9PR4 (HIGH)
9PR4 (NORMAL)
22GP (REV PLAY,DECK2)
22GP (PLAY,DECK2)
22YP (PAUSE,DECK2)
22RP (REC MUTE,DECK2)
22RP (RECORD,DECK2)
22RP (1)
22RP (2)
22RP (3)
22RP (4)
22RP (5)
22RP (6)
22RP (7)
22RP (8)
22RP (9)
22YP (TAPE SIDE A)
22YP (TAPE SIDE B)
22GP (MS,DECK1)
22YP (PMS,DECK1)
,EVQ-QSK04M (REC MUTE,DECK1)
,EVQ-QSK04M (PAUSE,DECK1)
,EVQ-QSK04M (STOP,DECK1)
,EVQ-QSK04M (MS,DECK2)
,EVQ-QSK04M (MS,DECK2)
,EVQ-QSK04M (STOP,DECK2)
,EVQ-QSK04M (REV PLAY,DECK2)
,EVQ-QSK04M (PLAY,DECK2)
,EVQ-QSK04M (PAUSE,DECK2)
,EVQ-QSK04M (REC MUTE,DECK2)
,EVQ-QSK04M (RECORD,DECK2)
,EVQ-QSK04M (1)
,EVQ-QSK04M (2)
,EVQ-QSK04M (3)
,EVQ-QSK04M (4)
,EVQ-QSK04M (5)
EVQ-QSK04M (6)
EVQ-QSK04M (7)
EVQ-QSK04M (8)
EVQ-QSK04M (9)
EVQ-QSK04M (TAPE SIDE)
(MS SELECTOR)
EVQ-QSK04M (BACK SKIP)
EVQ-QSK04M (REV PLAY,DECK1)
EVQ-QSK04M (PLAY,DECK1)
EVQ-QSK04M (FWD SKIP)
2-2-3 SSS (REVERSE MODE 1)
2-2-3 SSS (REVERSE MODE 2)
-SSS-322 (BLANK SKIP)
2-2-3 SSS (REC MODE)
EVQ-QSK04M (COUNTER RESET)
EVQ-QSK04M (SYNC DUBB H)
EVQ-QSK04M (SYNC DUBB N)
ECTION ===
. CIRCUIT BOARD
S177
S177
DUCTOR 5.6MMH

Ref.No.	Part No.	Descripton
L254	* 87-005-242	MICRO INDUCTOR 5.6MMH
L303	* 82-196-604	COIL 2.2/6.8MMH
L304	* 82-196-604	COIL 2.2/6.8MMH
SFR251	* 87-021-743	SFR 22K
SFR252	* 87-021-743	SFR 22K
SFR301	* 87-021-743	SFR 22K
SFR302	* 87-021-743	SFR 22K
		=== PB. AMP. CIRCUIT BOARD SECTION ===
PCB-D	*	PB. AMP. CIRCUIT BOARD
D151	87-020-110	DIODE 1SS177
D810	87-020-110	DIODE 1SS177
D813	87-020-110	DIODE 1SS177
D852	87-020-110	DIODE 1SS177
L101	* 82-196-603	COIL,TRAP,100K
L102	* 82-196-603	COIL,TRAP,100K
SFR101	* 87-021-738	SFR 1K
SFR102	* 87-021-738	SFR 1K
SFR103	* 87-021-742	SFR 10K
SFR104	* 87-021-742	SFR 10K
		=== DISPLAY CIRCUIT BOARD SECTION ===
PCB-E	*	DISPLAY CIRCUIT BOARD
C501	* 87-010-071	CAP,ELECT 1-50V
C503	* 87-014-033	CAP,PP 100PF
C504	* 87-010-248	CAP,ELECT 220-10V
C505	* 87-010-414	CAP,ELECT 33-25V
C506	* 87-015-697	CAP,ELECT 3.3-50V
C507	* 87-010-244	CAP,ELECT 22-16V
C508	* 87-010-244	CAP,ELECT 22-16V
D501	87-027-405	ZENER RD2.2EB
D502	87-020-110	DIODE 1SS177
D503	87-020-123	DIODE DS446
D504	87-020-123	DIODE DS446
D506	87-020-110	DIODE 1SS177
D507	87-020-110	DIODE 1SS177
LED501	* 87-027-542	LED LN217RP (REC,DECK1)
LED502	* 87-027-543	LED LN317GP (B TYPE)
LED503	* 87-027-542	LED LN217RP (REC,DECK2)
LED504	* 87-027-542	LED LN217RP (C TYPE)
LED505	* 87-027-773	LED,GL-9NG4 (◀,DECK1)
LED506	* 87-027-773	LED,GL-9NG4 (▶,DECK1)
LED507	* 87-027-773	LED,GL-9NG4 (◀,DECK2)
LED508	* 87-027-773	LED,GL-9NG4 (▶,DECK2)
LED509	* 87-027-542	LED LN217RP (⊂⊃,DECK1)
LED510	* 87-027-542	LED LN217RP (⊃⊂,DECK1)
LED511	* 87-027-542	LED LN217RP (⇄,DECK1)
LED512	* 87-027-542	LED LN217RP (⊂⊃,DECK2)
LED513	* 87-027-542	LED LN217RP (⊃⊂,DECK2)
LED514	* 87-027-542	LED LN217RP (⇄,DECK2)
LED515	* 87-027-543	LED,LN317GP (8P PEAK PROG METER)
LED516	* 87-027-543	LED,LN317GP (8P PEAK PROG METER)
LED517	* 87-027-543	LED,LN317GP (8P PEAK PROG METER)
LED518	* 87-027-543	LED,LN317GP (8P PEAK PROG METER)
LED519	* 87-027-543	LED,LN317GP (8P PEAK PROG METER)
LED520	* 87-027-543	LED,LN317GP (8P PEAK PROG METER)
LED521	* 87-027-542	LED,LN217RP (8P PEAK PROG METER)
LED522	* 87-027-542	LED,LN217RP (8P PEAK PROG METER)
LED523	* 87-027-542	LED,LN217RP (8P PEAK PROG METER)
LED524	* 87-027-542	LED,LN217RP (8P PEAK PROG METER)
LED525	87-027-542	LED LN217RP (8P PEAK PROG METER)
LED526	87-027-542	LED LN217RP (8P PEAK PROG METER)

Ref. No.	Part No.	Description
LED527	87-027-542	LED LN217RP (8P PEAK PROG METER)
LED528	87-027-542	LED LN217RP (8P PEAK PROG METER)
LED529	87-027-542	LED LN217RP (8P PEAK PROG METER)
LED530	87-027-542	LED LN217RP (8P PEAK PROG METER)
		=== VOLUME CIRCUIT BOARD SECTION ===
PCB-F	*	VOLUME CIRCUIT BOARD
VR201	82-196-608	VOLUME 10K (RECORD LEVEL,L)
VR202	82-196-608	VOLUME 10K (RECORD LEVEL,R)
		=== SWITCH-1 CIRCUIT BOARD SECTION ===
PCB-G	*	SWITCH-1 CIRCUIT BOARD
D824	87-020-110	DIODE 1SS177
D825	87-020-110	DIODE 1SS177
J5	82-109-612	JACK (PHONES)
S2	82-109-615	ROTARY SW (DOLBY B-C NR)
S3	82-109-615	ROTARY SW (TIMER)
		=== FL CIRCUIT BOARD SECTION ===
PCB-H	*	FL CIRCUIT BOARD
FL1	* 82-198-601	FL,4ST-01ZS1 4DIGIT
		=== DOLBY NR CIRCUIT BOARD SECTION ===
	87-020-132	DOLBY UNIT HA12058J (W/PCB-I)
		=== SWITCH-2 CIRCUIT BOARD SECTION ===
PCB-J	*	SWITCH-2 CIRCUIT BOARD
S1	82-109-613	PUSH SW,SPH 222K (POWER)
		=== DECK-1 CIRCUIT BOARD SECTION ===
PCB-K	*	DECK-1 CIRCUIT BOARD
S1101	86-517-621	LEAF SW 2ME-1 (ENA B,DECK1)
S1102	86-517-621	LEAF SW 2ME-1 (ENA A,DECK1)
S1103	86-517-621	LEAF SW 2ME-1 (CO,DECK1)
S1104	86-517-621	LEAF SW 2ME-1 (MT,DECK1)
S1105	86-517-621	LEAF SW 2ME-1 (CAST,DECK1)
S1106	87-031-874	LEAF SW,PAUSE (91BN) (DIRECT)
SFR1101	* 87-021-825	SFR 22K
SFR1102	* 87-021-824	SFR 10K
SOL1101	* 86-517-611	SOLENOID 2ME-1A (FR,DECK1)
SOL1102	* 86-517-612	SOLENOID 2ME-1B (PLAY,DECK1)
		=== DECK-2 CIRCUIT BOARD SECTION ===
PCB-L	*	DECK-2 CIRCUIT BOARD
S1107	86-517-621	LEAF SW 2ME-1 (ENA B,DECK2)
S1108	86-517-621	LEAF SW 2ME-1 (ENA A,DECK2)
S1109	86-517-621	LEAF SW 2ME-1 (CO,DECK2)
S1110	86-517-621	LEAF SW 2ME-1 (MT,DECK2)
S1111	86-517-621	LEAF SW 2ME-1 (CAST,DECK2)
S1112	87-031-874	LEAF SW, PAUSE (91BN) (DIRECT)
SFR1103	* 87-021-825	SFR 22K
SFR1104	* 87-021-824	SFR 10K
SOL1103	* 86-517-611	SOLENOID 2ME-1A (FR,DECK2)
SOL1104	* 86-517-612	SOLENOID 2ME-1B (PLAY,DECK2)
		=== SENSOR-1 CIRCUIT BOARD SECTION ===
PCB-M	*	SENSOR-1 CIRCUIT BOARD
CP1103	* 87-020-457	PHOTO SENSOR NJL-5144L-BC

Ref. No.	Part No.	Description
		=== SENSOR-2 CIRCUIT BOARD SECTION ===
PCB-N	*	SENSOR-2 CIRCUIT BOARD
CP1104	87-020-457	PHOTO SENSOR NJL-5144L-BC
		=== FUSE CIRCUIT BOARD SECTION ===
⚠PCB-O	*	FUSE CIRCIUT BOARD SECTION
⚠	* 87-033-147	FUSE CLAMP
⚠F1	87-035-220	FUSE,T630MMA (H MODEL)
⚠F1	87-035-295	FUSE,630MA (U,C MODELS)
⚠F1	87-035-145	FUSE,T250MA (E,K,Z,G MODELS)
		=== SUB CIRUCIT BOARD SECTION ===
PCB-P	*	SUB CIRCUIT BOARD
		=== MISCELLANEOUS ===
⚠	87-034-958	AC CORD (H MODEL)
⚠	87-034-578	AC CORD (U,C MODELS)
⚠	87-034-877	AC CORD (E,Z MODELS)
⚠	87-034-975	AC CORD (K MODEL)
⚠	87-034-892	AC CORD (G MODEL)
⚠	87-085-184	AC CORD BUSHING D (H,U,C MODELS)
⚠	87-085-185	AC CORD BUSHING E (E,K,Z,G MODELS)
M101	87-045-235	MOTOR MMA6B2LW (DECK1)
M102	87-045-235	MOTOR MMA6B2LW (DECK2)
⚠PT1	82-104-648	POWER TRANSFORMER (H MODEL)
⚠PT1	82-104-645	POWER TRANSFORMER (U,C MODELS)
⚠PT1	82-104-646	POWER TRANSFORMER (E,Z MODELS)
⚠PT1	82-104-647	POWER TRANSFORMER (K,G MODELS)
RPEH1	87-046-259	RPEH HD425821RVJ (DECK1)
RPEH2	87-046-259	RPEH HD425821RVJ (DECK2)
S4	87-031-586	ROTARY SW (VOLT.SEL.) (H MODEL)

Note; Combination Circuit Board

The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary,please order the entire circuit board.

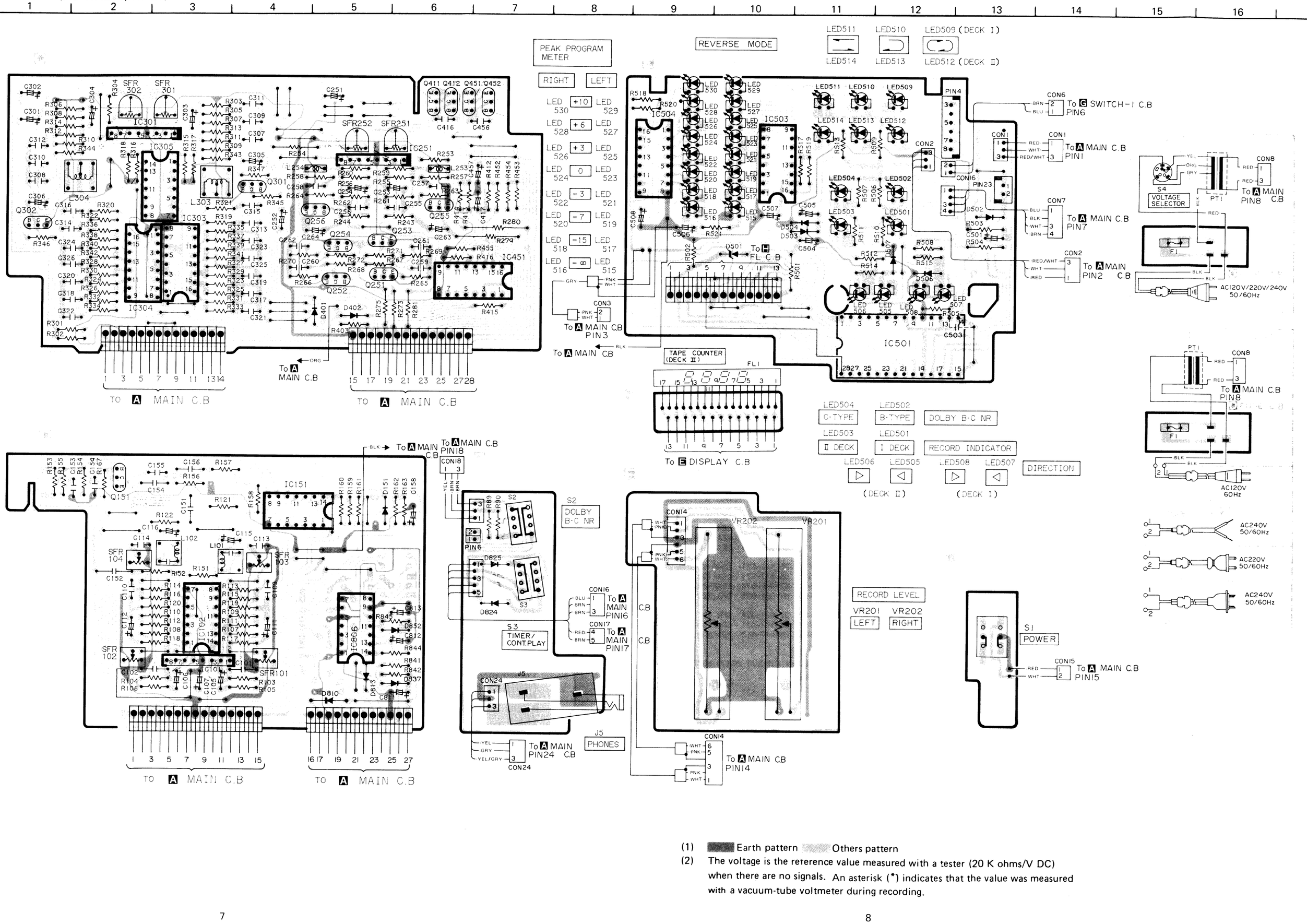
Combination circuit board A 82-104-630
PCB-A 82-104-631
PCB-O 82-104-605
PCB-P 82-104-639

Combination circuit board B 82-109-601
PCB-B 82-109-604
PCB-C 82-109-604
PCB-D 82-109-605
PCB-E 82-109-606
PCB-F 82-109-603
PCB-G 82-109-608
PCB-H 82-109-607
PCB-J 82-109-609

Combination circuit board C 86-517-601
PCB-K,L 86-517-602
PCB-M,N 86-517-603

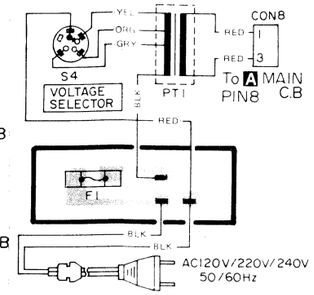
⚠ Safety component symbol

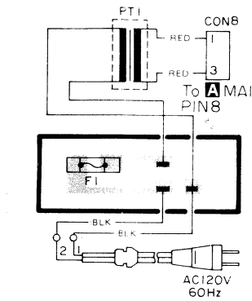
This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

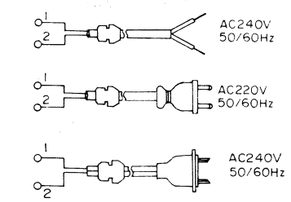


(1) Earth pattern Others pattern

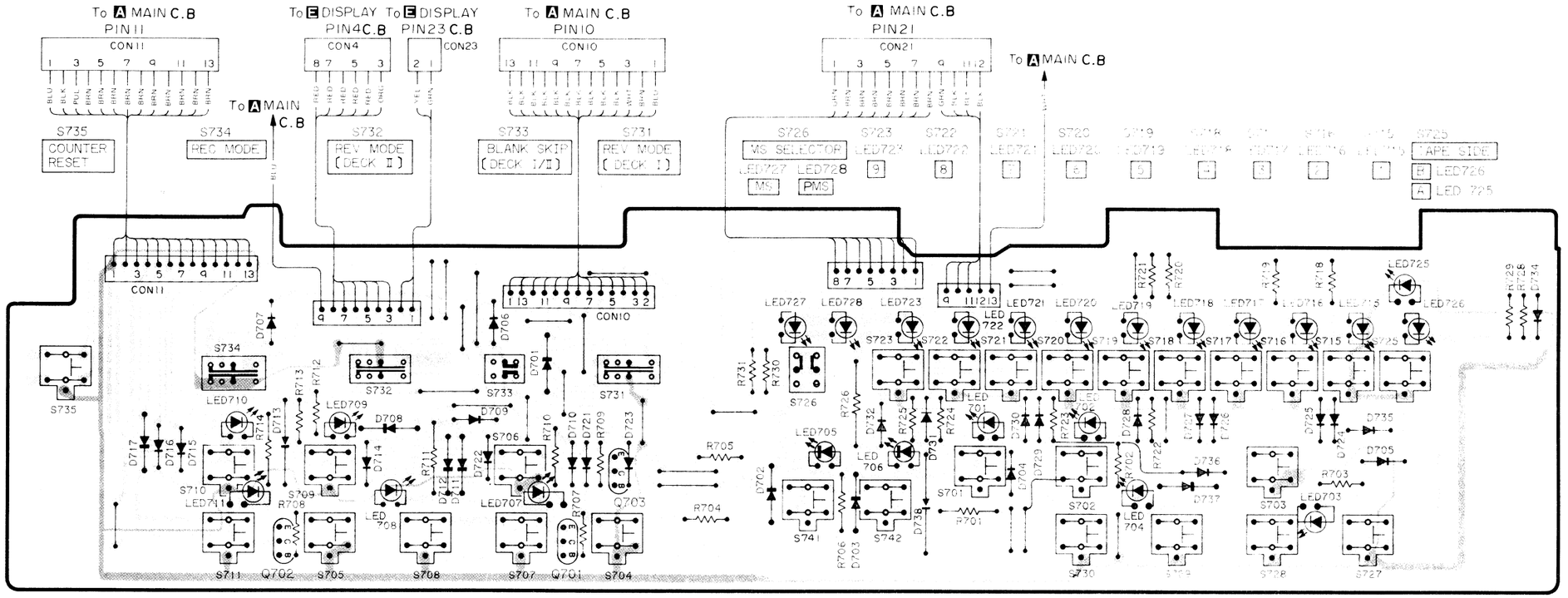
(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals. An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.

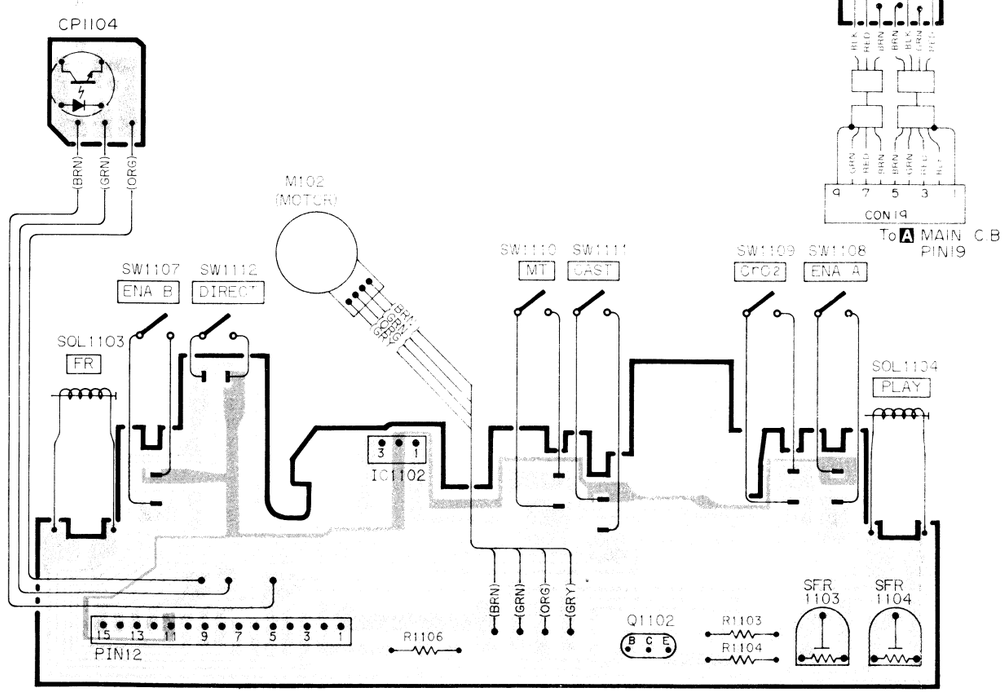

S4
VOLTAGE SELECTOR
PT1
CON8
YEL
ORG
GRY
RED
BLK
To A MAIN C.B PIN8
F1
AC120V/220V/240V
50/60Hz

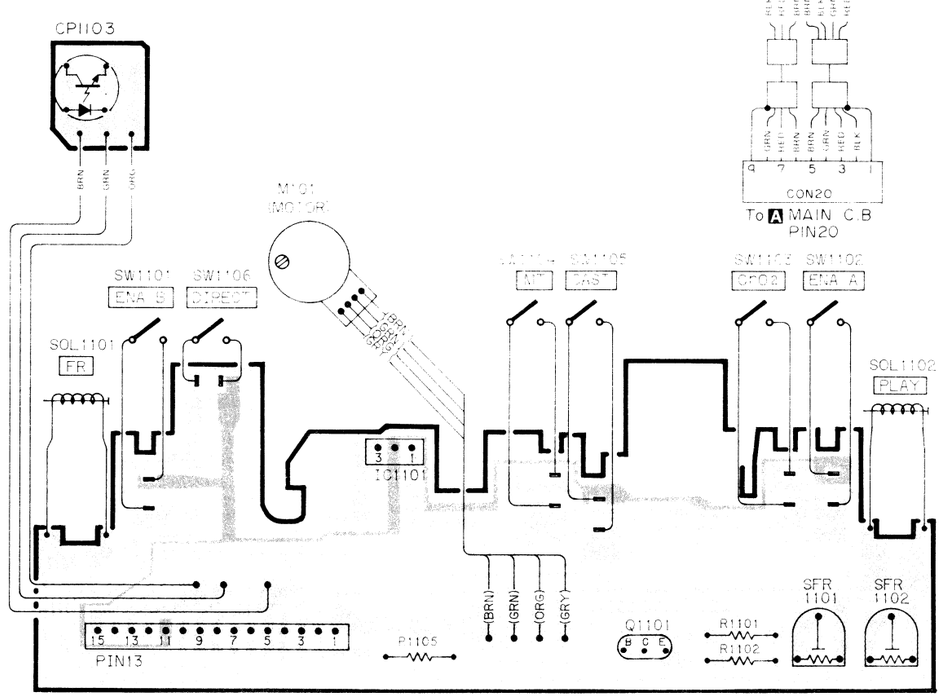

PT1
CON8
RED
To A MAIN C.B PIN8
F1
BLK
AC120V
60Hz


AC240V
50/60Hz
AC220V
50/60Hz
AC240V
50/60Hz

C.B


To A MAIN C.B PIN11
CON11
To E DISPLAY PIN4 C.B
CON4
To E DISPLAY PIN23 C.B
CON23
To A MAIN C.B PIN10
CON10
To A MAIN C.B PIN21
CON21
To A MAIN C.B
S735 COUNTER RESET
S734 REC MODE
S732 REV MODE (DECK II)
S733 BLANK SKIP (DECK I/II)
S731 REV MODE (DECK I)
S726 MS SELECTOR
LED727 LED728
MS PMS
S723 S722 S721 S720 S719 S718 S717 S716 S715 S725
TAPE SIDE
B LED726
A LED 725
S710 LED710 S709 LED709 S706 STOP
S711 LED711 S705 S708 LED708 S707 LED707 S704
REC MUTE PAUSE
RECORD MS PLAY REV PLAY MS
(DECK II)
S741 LED705 S742 LED706
DUBBING
HIGH SPEED NORMAL SPEED
REC MUTE PAUSE
S730 S729 S728 S727
FWD SKIP MS PLAY REV PLAY BWD SKIP MS
STOP
(DECK I)
R/P/E-1 HEAD (DECK I)
CON20
To A MAIN C.B PIN20
R/P/E-2 HEAD (DECK II)
CON19
To A MAIN C.B PIN19


CP1104
(BRN) (GRN) (ORG)
M102 (MOTOR)
SW1107 ENA B
SW1112 DIRECT
SOL1103 FR
IC1102
SW1110 MT
SW1111 CAST
SW1109 CrO2
SW1108 ENA A
SOL1104 PLAY
PIN12
R1106
(BRN) (GRN) (ORG) (GRY)
Q1102
R1103
R1104
SFR 1103
SFR 1104


CP1103
(BRN) (GRN) (ORG)
M101 (MOTOR)
SW1104 ENA B
SW1106 DIRECT
SOL1101 FR
IC1101
SW1105 MT
SW1102 CAST
SW1103 CrO2
SW1102 ENA A
SOL1102 PLAY
PIN13
R1105
(BRN) (GRN) (ORG) (GRY)
Q1101
R1101
R1102
SFR 1101
SFR 1102

ELECTRICAL MAIN PARTS LIST

- +++ mark denotes a component of assembled part which part code is represented by a previously stated component.
- ★-mark means less required items and availabilities may be limited.

CAPACITORS No mark, U, UF: μF P, PF : pF

COILS MMH: mH UH : μH

FUSE MMA: mA

Ref. No.	Part No.	Description
		=== IC ===
	87-020-454	IC,DM6851
⚡	82-104-601	IC,HD38702A37
	87-020-489	IC,IR2E19
	87-020-261	IC,LA6358S
⚡	82-104-602	IC,LM6402-596
⚡	82-104-603	IC,LM6402-597
⚡	82-104-699	IC,LM6413E-1860
	87-020-140	IC,L78M12
	87-020-096	IC,M4066BP
	87-020-157	IC,M5210L
	87-027-895	IC,M5218L
	87-027-827	IC,TC4069UBP
	87-020-438	IC,TD62504P
	87-027-538	IC,UPD-4069
		=== TRANSISTOR ===
	89-109-521	TRANSISTOR,2SA952K
	89-110-155	TRANSISTOR,2SA1015,GR
	89-113-584	TRANSISTOR,2SA1358Y
	89-206-051	TRANSISTOR,2SB605K L
	89-206-415	TRANSISTOR,2SB641,S
	89-412-763	TRANSISTOR,2SC1276QP
	89-318-155	TRANSISTOR,2SC1815,GR
	89-320-011	TRANSISTOR,2SC2001K
	89-405-711	TRANSISTOR,2SD571,K
	89-412-753	TRANSISTOR,2SD1275
	89-413-023	TRANSISTOR,2SD1302S
		=== MAIN CIRCUIT BOARD SECTION ===
PCB-A	*	MAIN CIRCUIT BOARD
C3	* 87-018-036	CAP,CERA-SOL S 220P
C4	* 87-018-036	CAP,CERA-SOL S 220P
C5	* 87-018-032	CAP,CERA-SOL S 100P
C6	* 87-018-032	CAP,CERA-SOL S 100P
C7	* 87-015-954	CAP,ELECT LL 10-16V
C8	* 87-015-954	CAP,ELECT LL 10-16V
C19	* 87-018-047	CAP,CERA-SOL S 0.01Y/16
C20	* 87-018-047	CAP,CERA-SOL S 0.01Y/16
C21	* 87-015-698	CAP,ELECT 4.7-50
C22	* 87-015-698	CAP,ELECT 4.7-50
C31	* 87-018-047	CAP,CERA-SOL S 0.01Y/16
C34	* 87-018-044	CAP,CERA-SOL S 1000P
C36	* 87-018-047	CAP,CERA-SOL S 0.01Y/16
C51	* 87-018-047	CAP,CERA-SOL S 0.01Y/16
C65	* 87-015-954	CAP,ELECT LL 10-16V
C66	* 87-015-954	CAP,ELECT LL 10-16V
C403	* 87-014-115	CAP,PP 0.0056G
C411	* 87-010-060	CAP,ELECT,100-16
C414	* 87-014-061	CAP,PP 1500PF
C454	* 87-014-061	CAP,PP 1500PF
C601	* 87-018-047	CAP,CERA-SOL S 0.01Y/16
C602	* 87-018-047	CAP,CERA-SOL S 0.01Y/16
C603	* 87-010-411	CAP,ELECT 1000-50V
C605	* 87-010-437	CAP,ELECT 1000-50V (U,C,E,K,G,Z MODELS)
C611	* 87-018-047	CAP,CERA-SOL S 0.01Y/16
C804	* 87-010-237	CAP,ELECT 1000-16(SR)
C805	* 87-010-237	CAP,ELECT 1000-16(SR)
C806	* 87-010-237	CAP,ELECT 1000-16(SR)
C807	* 87-010-237	CAP,ELECT 1000-16(SR)
C816	* 87-018-044	CAP,CERA-SOL S 1000P
D1	87-020-110	DIODE 1SS177
D2	87-020-110	DIODE 1SS177
D31	87-020-110	DIODE 1SS177
D51	87-020-110	DIODE 1SS177
D52	87-020-110	DIODE 1SS177
D53	87-020-110	DIODE 1SS177
D54	87-020-095	DIODE MC921
D55	87-020-110	DIODE 1SS177
D101	87-020-110	DIODE 1SS177
D102	87-020-110	DIODE 1SS177
D251	87-027-475	DIODE,ZENER HZ-6B1
D301	87-027-475	DIODE,ZENER HZ-6B1
D601	87-020-025	DIODE 2B4B41,LC-2
D602	87-020-123	DIODE DS446
D603	87-020-123	DIODE DS446
D604	87-027-455	DIODE S2V10,F
D606	87-027-365	DIODE S5277B
D607	87-020-110	DIODE 1SS177
D801	87-020-110	DIODE 1SS177
D802	87-020-123	DIODE DS446
D803	87-020-123	DIODE DS446
D804	87-020-123	DIODE DS446
D805	87-020-123	DIODE DS446
D806	87-020-110	DIODE 1SS177
D807	87-020-123	DIODE DS446
D808	87-020-123	DIODE DS446
D811	87-020-110	DIODE 1SS177
D813	87-020-110	DIODE 1SS177
D817	87-020-110	DIODE 1SS177
D818	87-020-110	DIODE 1SS177
D819	87-020-110	DIODE 1SS177
D820	87-020-110	DIODE 1SS177
D821	87-020-110	DIODE 1SS177
D823	87-020-110	DIODE 1SS177
D826	87-020-110	DIODE 1SS177
D827	87-020-110	DIODE 1SS177
D829	87-020-110	DIODE 1SS177
D830	87-020-110	DIODE 1SS177
D832	87-020-110	DIODE 1SS177
D841	87-020-110	DIODE 1SS177
D842	87-020-110	DIODE 1SS177
D843	87-020-110	DIODE 1SS177
D844	87-020-110	DIODE 1SS177
D845	87-020-110	DIODE 1SS177
D846	87-020-110	DIODE 1SS177
D847	87-020-110	DIODE 1SS177
D848	87-020-110	DIODE 1SS177
D851	87-020-110	DIODE 1SS177
J1	87-049-301	JACK PLATE ASSY (LINE IN/REC,LEFT)
J2	+++	JACK PLATE ASSY (LINE IN/REC,RIGHT)
J3	+++	JACK PLATE ASSY (LINE OUT/PLAY,LEFT)
J4	+++	JACK PLATE ASSY (LINE OUT/PLAY,RIGHT)
L1	* 82-196-603	COIL,TRAP,100KHZ
L2	* 82-196-603	COIL,TRAP,100KHZ
L201	82-198-715	MPX FILTER
L202	82-198-715	MPX FILTER
L251	* 82-196-603	COIL,TRAP,100K
L252	* 82-196-603	COIL,TRAP,100K
L301	* 82-196-603	COIL,TRAP,100K
L302	* 82-196-603	COIL,TRAP,100K
L401	* 82-104-642	COIL OSC,1
L411	* 82-104-643	COIL OSC,2
L412	* 87-003-051	CHOKE COIL 470 UH
L451	* 82-104-643	COIL OSC,2
L452	* 87-003-051	CHOKE COIL 470 UH
L801	* 82-189-642	COIL,OSC LM6400
LED601	* 87-027-542	LED,LN217RP
⚠R405	, 87-029-067	RES,FUSIBLE,1/4W-4.7
⚠R603	, 87-029-366	RES,FUSIBLE 1/2W-4.7
⚠R607	, 87-029-083	RES,FUSIBLE,1/2W-10
R813	* 87-025-085	RES,MF 68-2W
R814	* 87-025-085	RES,MF 68-2W
R815	* 87-025-085	RES,MF 68-2W
R816	* 87-025-085	RES,MF 68-2W
RA801	* 82-146-611	RES,ARRAY 47KX9
RA802	* 82-104-619	RES,ARRAY 47KX12
RA803	* 82-104-618	RES,ARRAY 47KX11
RA804	* 82-146-611	RES,ARRAY 47KX9
RA805	* 82-146-611	RES,ARRAY 47KX9
RA806	* 82-104-617	RES,ARRAY 47KX8
RA807	* 82-146-613	RES,ARRAY 47KX7
RY1	* 87-045-237	RELAY,GSA-237P 12VDC
RY2	* 87-045-237	RELAY,GSA-237P 12VDC
SFR1	* 87-021-738	SFR 1K
SFR2	* 87-021-738	SFR 1K
SFR3	* 87-021-743	SFR 22K
SFR4	* 87-021-743	SFR 22K
SFR5	* 87-021-743	SFR 22K
SFR6	* 87-021-743	SFR 22K
SFR411	* 87-021-746	SFR 100K
SFR412	* 87-021-746	SFR 100K
SFR451	* 87-021-746	SFR 100K
SFR452	* 87-021-746	SFR 100K
		=== KEY SWITCH CIRCUIT BOARD SECTION ===
PCB-B	*	KEY SWITCH CIRCUIT BOARD
D701	87-020-110	DIODE 1SS177
D702	87-020-110	DIODE 1SS177
D703	87-020-110	DIODE 1SS177
D704	87-020-110	DIODE 1SS177
D705	87-020-110	DIODE 1SS177
D706	87-020-110	DIODE 1SS177
D707	87-020-110	DIODE 1SS177
D708	87-020-110	DIODE 1SS177
D709	87-020-110	DIODE 1SS177
D710	87-020-110	DIODE 1SS177
D711	87-020-110	DIODE 1SS177
D712	87-020-110	DIODE 1SS177
D713	87-020-110	DIODE 1SS177
D714	87-020-110	DIODE 1SS177
D715	87-020-110	DIODE 1SS177
D716	87-020-110	DIODE 1SS177
D717	87-020-110	DIODE 1SS177
D721	87-020-110	DIODE 1SS177
D722	87-020-110	DIODE 1SS177
D723	87-020-110	DIODE 1SS177
D724	87-020-110	DIODE 1SS177
D725	87-020-110	DIODE 1SS177
D726	87-020-110	DIODE 1SS177
D727	87-020-110	DIODE 1SS177
D728	87-020-110	DIODE 1SS177
D729	87-020-110	DIODE 1SS177
D730	87-020-110	DIODE 1SS177
D731	87-020-110	DIODE 1SS177
D732	87-020-110	DIODE 1SS177
D734	87-020-110	DIODE 1SS177
D735	87-020-110	DIODE 1SS177
D736	87-020-110	DIODE 1SS177
D737	87-020-110	DIODE 1SS177
D738	87-020-110	DIODE 1SS177
LED701	* 87-020-093	LED LN222RP (REC MUTE,DECK1)
LED702	* 87-020-092	LED LN422YP (PAUSE,DECK1)
LED703	* 87-020-091	LN322GP (REV PLAY,DECK1)
LED704	* 87-020-091	LN322GP (PLAY,DECK1)
LED705	* 87-027-772	LED GL-9PR4 (HIGH)
LED706	* 87-027-772	LED GL-9PR4 (NORMAL)
LED707	* 87-020-091	LED LN322GP (REV PLAY,DECK2)
LED708	* 87-020-091	LED LN322GP (PLAY,DECK2)
LED709	* 87-020-092	LED LN422YP (PAUSE,DECK2)
LED710	* 87-020-093	LED LN222RP (REC MUTE,DECK2)
LED711	* 87-020-093	LED LN222RP (RECORD,DECK2)
LED715	* 87-020-093	LED LN222RP (1)
LED716	* 87-020-093	LED LN222RP (2)
LED717	* 87-020-093	LED LN222RP (3)
LED718	* 87-020-093	LED LN222RP (4)
LED719	* 87-020-093	LED LN222RP (5)
LED720	* 87-020-093	LED LN222RP (6)
LED721	* 87-020-093	LED LN222RP (7)
LED722	* 87-020-093	LED LN222RP (8)
LED723	* 87-020-093	LED LN222RP (9)
LED725	* 87-020-092	LED LN422YP (TAPE SIDE A)
LED726	* 87-020-092	LED LN422YP (TAPE SIDE B)
LED727	* 87-020-091	LED,LN322GP (MS,DECK1)
LED728	* 87-020-092	LED LN422YP (PMS,DECK1)
S701	87-031-771	TACT SW,EVQ-QSK04M (REC MUTE,DECK1)
S702	87-031-771	TACT SW,EVQ-QSK04M (PAUSE,DECK1)
S703	87-031-771	TACT SW,EVQ-QSK04M (STOP,DECK1)
S704	87-031-771	TACT SW,EVQ-QSK04M (MS,DECK2)
S705	87-031-771	TACT SW,EVQ-QSK04M (MS,DECK2)
S706	87-031-771	TACT SW,EVQ-QSK04M (STOP,DECK2)
S707	87-031-771	TACT SW,EVQ-QSK04M (REV PLAY,DECK2)
S708	87-031-771	TACT SW,EVQ-QSK04M (PLAY,DECK2)
S709	87-031-771	TACT SW,EVQ-QSK04M (PAUSE,DECK2)
S710	87-031-771	TACT SW,EVQ-QSK04M (REC MUTE,DECK2)
S711	87-031-771	TACT SW,EVQ-QSK04M (RECORD,DECK2)
S715	87-031-771	TACT SW,EVQ-QSK04M (1)
S716	87-031-771	TACT SW,EVQ-QSK04M (2)
S717	87-031-771	TACT SW,EVQ-QSK04M (3)
S718	87-031-771	TACT SW,EVQ-QSK04M (4)
S719	87-031-771	TACT SW,EVQ-QSK04M (5)
S720	87-031-771	TACT SW EVQ-QSK04M (6)
S721	87-031-771	TACT SW EVQ-QSK04M (7)
S722	87-031-771	TACT SW EVQ-QSK04M (8)
S723	87-031-771	TACT SW EVQ-QSK04M (9)
S725	87-031-771	TACT SW EVQ-QSK04M (TAPE SIDE)
S726	87-109-614	PUSH SW (MS SELECTOR)
S727	87-031-771	TACT SW EVQ-QSK04M (BACK SKIP)
S728	87-031-771	TACT SW EVQ-QSK04M (REV PLAY,DECK1)
S729	87-031-771	TACT SW EVQ-QSK04M (PLAY,DECK1)
S730	87-031-771	TACT SW EVQ-QSK04M (FWD SKIP)
S731	87-031-802	SLIDE SW 2-2-3 SSS (REVERSE MODE 1)
S732	87-031-802	SLIDE SW 2-2-3 SSS (REVERSE MODE 2)
S733	87-031-873	SLIDE SW-SSS-322 (BLANK SKIP)
S734	87-031-802	SLIDE SW 2-2-3 SSS (REC MODE)
S735	87-031-771	TACT SW EVQ-QSK04M (COUNTER RESET)
S741	87-031-771	TACT SW EVQ-QSK04M (SYNC DUBB H)
S742	87-031-771	TACT SW EVQ-QSK04M (SYNC DUBB N)
		=== REC. AMP. CIRCUIT BOARD SECTION ===
PCB-C	*	REC. AMP. CIRCUIT BOARD
D401	87-020-110	DIODE 1SS177
D402	87-020-110	DIODE 1SS177
L253	* 87-005-242	MICRO INDUCTOR 5.6MMH

Description
SS177
22RP (REC MUTE,DECK1)
22YP (PAUSE,DECK1)
(REV PLAY,DECK1)
(PLAY,DECK1)
9PR4 (HIGH)
9PR4 (NORMAL)
22GP (REV PLAY,DECK2)
22GP (PLAY,DECK2)
22YP (PAUSE,DECK2)
22RP (REC MUTE,DECK2)
22RP (RECORD,DECK2)
22RP (1)
22RP (2)
22RP (3)
22RP (4)
22RP (5)
22RP (6)
22RP (7)
22RP (8)
22RP (9)
22YP (TAPE SIDE A)
22YP (TAPE SIDE B)
22GP (MS,DECK1)
22YP (PMS,DECK1)
EVQ-QSK04M (REC MUTE,DECK1)
EVQ-QSK04M (PAUSE,DECK1)
EVQ-QSK04M (STOP,DECK1)
EVQ-QSK04M (MS,DECK2)
EVQ-QSK04M (MS,DECK2)
EVQ-QSK04M (STOP,DECK2)
EVQ-QSK04M (REV PLAY,DECK2)
EVQ-QSK04M (PLAY,DECK2)
EVQ-QSK04M (PAUSE,DECK2)
EVQ-QSK04M (REC MUTE,DECK2)
EVQ-QSK04M (RECORD,DECK2)
EVQ-QSK04M (1)
EVQ-QSK04M (2)
EVQ-QSK04M (3)
EVQ-QSK04M (4)
EVQ-QSK04M (5)
EVQ-QSK04M (6)
EVQ-QSK04M (7)
EVQ-QSK04M (8)
EVQ-QSK04M (9)
EVQ-QSK04M (TAPE SIDE)
(MS SELECTOR)
EVQ-QSK04M (BACK SKIP)
EVQ-QSK04M (REV PLAY,DECK1)
EVQ-QSK04M (PLAY,DECK1)
EVQ-QSK04M (FWD SKIP)
2-2-3 SSS (REVERSE MODE 1)
2-2-3 SSS (REVERSE MODE 2)
-SSS-322 (BLANK SKIP)
2-2-3 SSS (REC MODE)
EVQ-QSK04M (COUNTER RESET)
EVQ-QSK04M (SYNC DUBB H)
EVQ-QSK04M (SYNC DUBB N)
ECTION ===
. CIRCUIT BOARD
S177
S177
DUCTOR 5.6MMH

Ref.No.	Part No.	Descripton
L254	* 87-005-242	MICRO INDUCTOR 5.6MMH
L303	* 82-196-604	COIL 2.2/6.8MMH
L304	* 82-196-604	COIL 2.2/6.8MMH
SFR251	* 87-021-743	SFR 22K
SFR252	* 87-021-743	SFR 22K
SFR301	* 87-021-743	SFR 22K
SFR302	* 87-021-743	SFR 22K
		=== PB. AMP. CIRCUIT BOARD SECTION ===
PCB-D	*	PB. AMP. CIRCUIT BOARD
D151	87-020-110	DIODE 1SS177
D810	87-020-110	DIODE 1SS177
D813	87-020-110	DIODE 1SS177
D852	87-020-110	DIODE 1SS177
L101	* 82-196-603	COIL,TRAP,100K
L102	* 82-196-603	COIL,TRAP,100K
SFR101	* 87-021-738	SFR 1K
SFR102	* 87-021-738	SFR 1K
SFR103	* 87-021-742	SFR 10K
SFR104	* 87-021-742	SFR 10K
		=== DISPLAY CIRCUIT BOARD SECTION ===
PCB-E	*	DISPLAY CIRCUIT BOARD
C501	* 87-010-071	CAP,ELECT 1-50V
C503	* 87-014-033	CAP,PP 100PF
C504	* 87-010-248	CAP,ELECT 220-10V
C505	* 87-010-414	CAP,ELECT 33-25V
C506	* 87-015-697	CAP,ELECT 3.3-50V
C507	* 87-010-244	CAP,ELECT 22-16V
C508	* 87-010-244	CAP,ELECT 22-16V
D501	87-027-405	ZENER RD2.2EB
D502	87-020-110	DIODE 1SS177
D503	87-020-123	DIODE DS446
D504	87-020-123	DIODE DS446
D506	87-020-110	DIODE 1SS177
D507	87-020-110	DIODE 1SS177
LED501	* 87-027-542	LED LN217RP (REC,DECK1)
LED502	* 87-027-543	LED LN317GP (B TYPE)
LED503	* 87-027-542	LED LN217RP (REC,DECK2)
LED504	* 87-027-542	LED LN217RP (C TYPE)
LED505	* 87-027-773	LED,GL-9NG4 (◀,DECK1)
LED506	* 87-027-773	LED,GL-9NG4 (▶,DECK1)
LED507	* 87-027-773	LED,GL-9NG4 (◀,DECK2)
LED508	* 87-027-773	LED,GL-9NG4 (▶,DECK2)
LED509	* 87-027-542	LED LN217RP (↻,DECK1)
LED510	* 87-027-542	LED LN217RP (↺,DECK1)
LED511	* 87-027-542	LED LN217RP (⇄,DECK1)
LED512	* 87-027-542	LED LN217RP (↻,DECK2)
LED513	* 87-027-542	LED LN217RP (↺,DECK2)
LED514	* 87-027-542	LED LN217RP (⇄,DECK2)
LED515	* 87-027-543	LED,LN317GP (8P PEAK PROG METER)
LED516	* 87-027-543	LED,LN317GP (8P PEAK PROG METER)
LED517	* 87-027-543	LED,LN317GP (8P PEAK PROG METER)
LED518	* 87-027-543	LED,LN317GP (8P PEAK PROG METER)
LED519	* 87-027-543	LED,LN317GP (8P PEAK PROG METER)
LED520	* 87-027-543	LED,LN317GP (8P PEAK PROG METER)
LED521	* 87-027-542	LED,LN217RP (8P PEAK PROG METER)
LED522	* 87-027-542	LED,LN217RP (8P PEAK PROG METER)
LED523	* 87-027-542	LED,LN217RP (8P PEAK PROG METER)
LED524	* 87-027-542	LED,LN217RP (8P PEAK PROG METER)
LED525	87-027-542	LED LN217RP (8P PEAK PROG METER)
LED526	87-027-542	LED LN217RP (8P PEAK PROG METER)

Ref. No.	Part No.	Description
LED527	87-027-542	LED LN217RP (8P PEAK PROG METER)
LED528	87-027-542	LED LN217RP (8P PEAK PROG METER)
LED529	87-027-542	LED LN217RP (8P PEAK PROG METER)
LED530	87-027-542	LED LN217RP (8P PEAK PROG METER)
		=== VOLUME CIRCUIT BOARD SECTION ===
PCB-F	*	VOLUME CIRCUIT BOARD
VR201	82-196-608	VOLUME 10K (RECORD LEVEL,L)
VR202	82-196-608	VOLUME 10K (RECORD LEVEL,R)
		=== SWITCH-1 CIRCUIT BOARD SECTION ===
PCB-G	*	SWITCH-1 CIRCUIT BOARD
D824	87-020-110	DIODE 1SS177
D825	87-020-110	DIODE 1SS177
J5	82-109-612	JACK (PHONES)
S2	82-109-615	ROTARY SW (DOLBY B-C NR)
S3	82-109-615	ROTARY SW (TIMER)
		=== FL CIRCUIT BOARD SECTION ===
PCB-H	*	FL CIRCUIT BOARD
FL1	* 82-198-601	FL,4ST-01ZS1 4DIGIT
		=== DOLBY NR CIRCUIT BOARD SECTION ===
	87-020-132	DOLBY UNIT HA12058J (W/PCB-I)
		=== SWITCH-2 CIRCUIT BOARD SECTION ===
PCB-J	*	SWITCH-2 CIRCUIT BOARD
S1	82-109-613	PUSH SW,SPH 222K (POWER)
		=== DECK-1 CIRCUIT BOARD SECTION ===
PCB-K	*	DECK-1 CIRCUIT BOARD
S1101	86-517-621	LEAF SW 2ME-1 (ENA B,DECK1)
S1102	86-517-621	LEAF SW 2ME-1 (ENA A,DECK1)
S1103	86-517-621	LEAF SW 2ME-1 (CO,DECK1)
S1104	86-517-621	LEAF SW 2ME-1 (MT,DECK1)
S1105	86-517-621	LEAF SW 2ME-1 (CAST,DECK1)
S1106	87-031-874	LEAF SW,PAUSE (91BN) (DIRECT)
SFR1101	* 87-021-825	SFR 22K
SFR1102	* 87-021-824	SFR 10K
SOL1101	* 86-517-611	SOLENOID 2ME-1A (FR,DECK1)
SOL1102	* 86-517-612	SOLENOID 2ME-1B (PLAY,DECK1)
		=== DECK-2 CIRCUIT BOARD SECTION ===
PCB-L	*	DECK-2 CIRCUIT BOARD
S1107	86-517-621	LEAF SW 2ME-1 (ENA B,DECK2)
S1108	86-517-621	LEAF SW 2ME-1 (ENA A,DECK2)
S1109	86-517-621	LEAF SW 2ME-1 (CO,DECK2)
S1110	86-517-621	LEAF SW 2ME-1 (MT,DECK2)
S1111	86-517-621	LEAF SW 2ME-1 (CAST,DECK2)
S1112	87-031-874	LEAF SW, PAUSE (91BN) (DIRECT)
SFR1103	* 87-021-825	SFR 22K
SFR1104	* 87-021-824	SFR 10K
SOL1103	* 86-517-611	SOLENOID 2ME-1A (FR,DECK2)
SOL1104	* 86-517-612	SOLENOID 2ME-1B (PLAY,DECK2)
		=== SENSOR-1 CIRCUIT BOARD SECTION ===
PCB-M	*	SENSOR-1 CIRCUIT BOARD
CP1103	* 87-020-457	PHOTO SENSOR NJL-5144L-BC

Ref. No.	Part No.	Description
		=== SENSOR-2 CIRCUIT BOARD SECTION ===
PCB-N	*	SENSOR-2 CIRCUIT BOARD
CP1104	87-020-457	PHOTO SENSOR NJL-5144L-BC
		=== FUSE CIRCUIT BOARD SECTION ===
⚠PCB-O	*	FUSE CIRCIUT BOARD SECTION
⚠	* 87-033-147	FUSE CLAMP
⚠F1	87-035-220	FUSE,T630MMA (H MODEL)
⚠F1	87-035-295	FUSE,630MA (U,C MODELS)
⚠F1	87-035-145	FUSE,T250MA (E,K,Z,G MODELS)
		=== SUB CIRUCIT BOARD SECTION ===
PCB-P	*	SUB CIRCUIT BOARD
		=== MISCELLANEOUS ===
⚠	87-034-958	AC CORD (H MODEL)
⚠	87-034-578	AC CORD (U,C MODELS)
⚠	87-034-877	AC CORD (E,Z MODELS)
⚠	87-034-975	AC CORD (K MODEL)
⚠	87-034-892	AC CORD (G MODEL)
⚠	87-085-184	AC CORD BUSHING D (H,U,C MODELS)
⚠	87-085-185	AC CORD BUSHING E (E,K,Z,G MODELS)
M101	87-045-235	MOTOR MMA6B2LW (DECK1)
M102	87-045-235	MOTOR MMA6B2LW (DECK2)
⚠PT1	82-104-648	POWER TRANSFORMER (H MODEL)
⚠PT1	82-104-645	POWER TRANSFORMER (U,C MODELS)
⚠PT1	82-104-646	POWER TRANSFORMER (E,Z MODELS)
⚠PT1	82-104-647	POWER TRANSFORMER (K,G MODELS)
RPEH1	87-046-259	RPEH HD425821RVJ (DECK1)
RPEH2	87-046-259	RPEH HD425821RVJ (DECK2)
S4	87-031-586	ROTARY SW (VOLT.SEL.) (H MODEL)

Note; Combination Circuit Board

The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary,please order the entire circuit board.

Combination circuit board A 82-104-630
PCB-A 82-104-631
PCB-O 82-104-605
PCB-P 82-104-639

Combination circuit board B 82-109-601
PCB-B 82-109-604
PCB-C 82-109-604
PCB-D 82-109-605
PCB-E 82-109-606
PCB-F 82-109-603
PCB-G 82-109-608
PCB-H 82-109-607
PCB-J 82-109-609

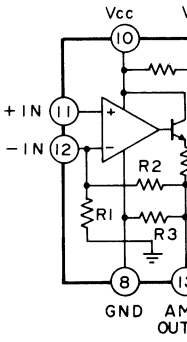
Combination circuit board C 86-517-601
PCB-K,L 86-517-602
PCB-M,N 86-517-603

⚠ Safety component symbol

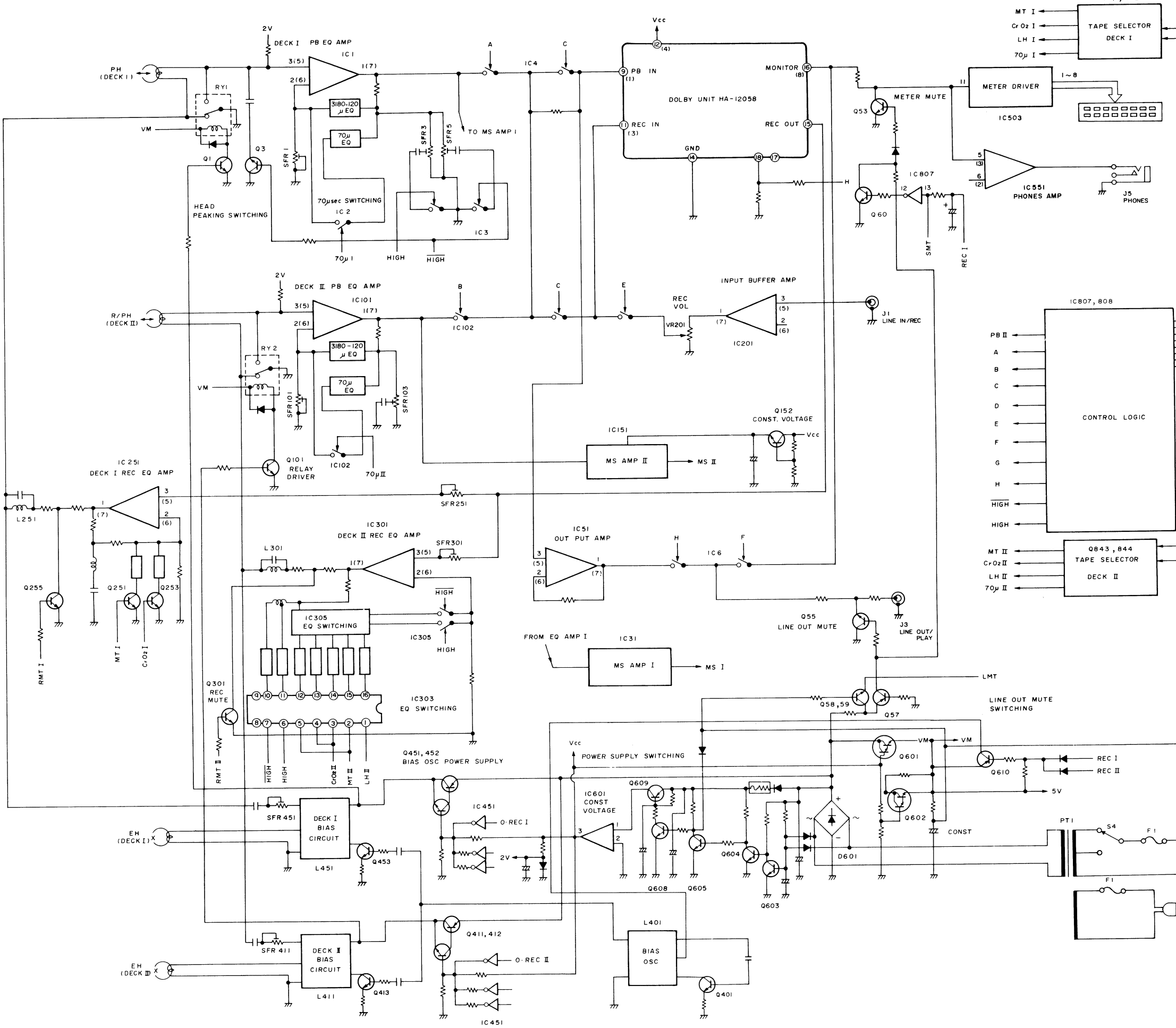
This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

IC BLOCK D

IR2E19

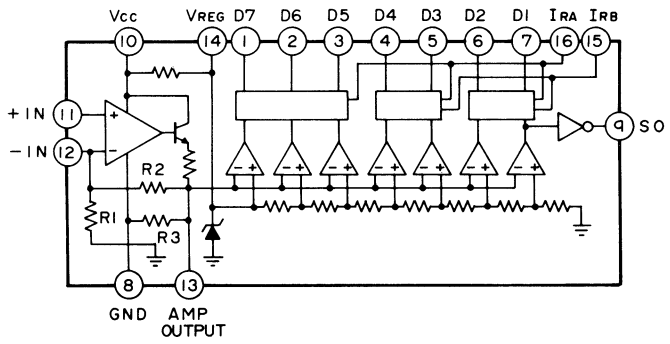


BLOCK DIAGRAM (AD-WX200, WX20)

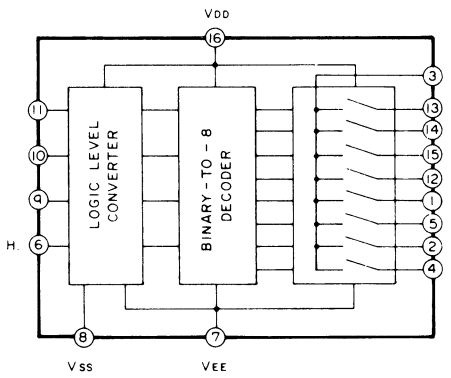


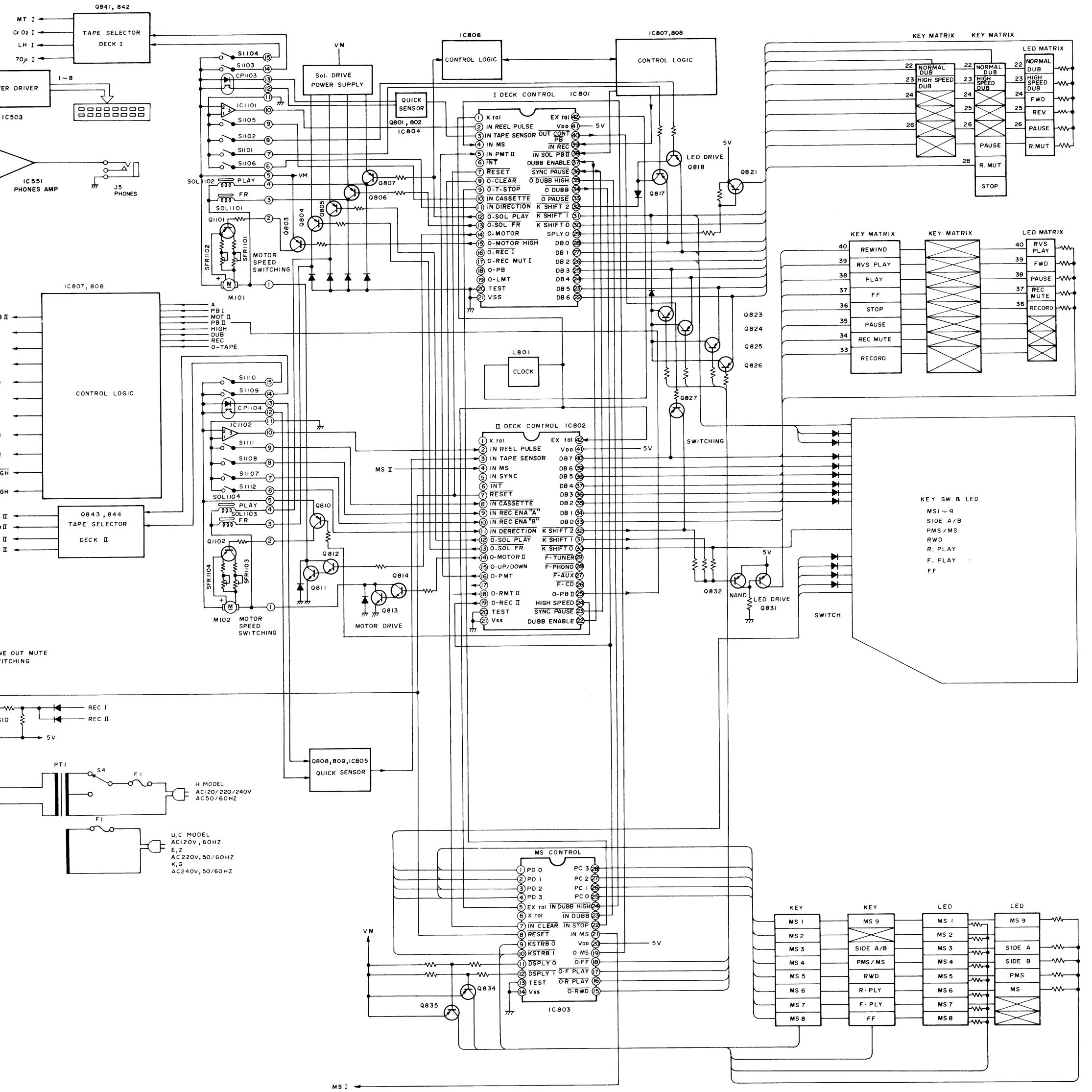
IC BLOCK DIAGRAM (AD-WX200, WX20)

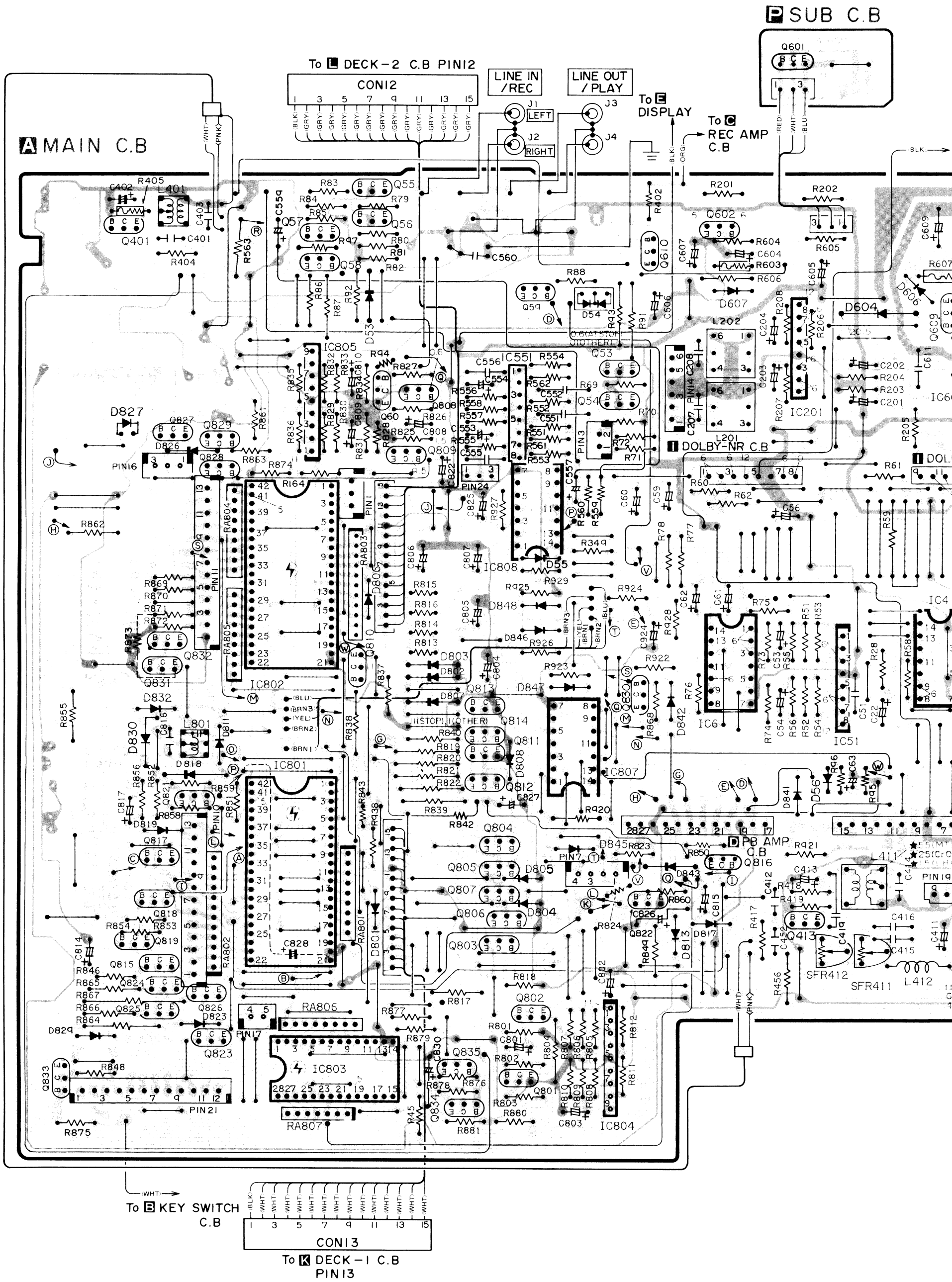
IR2E19

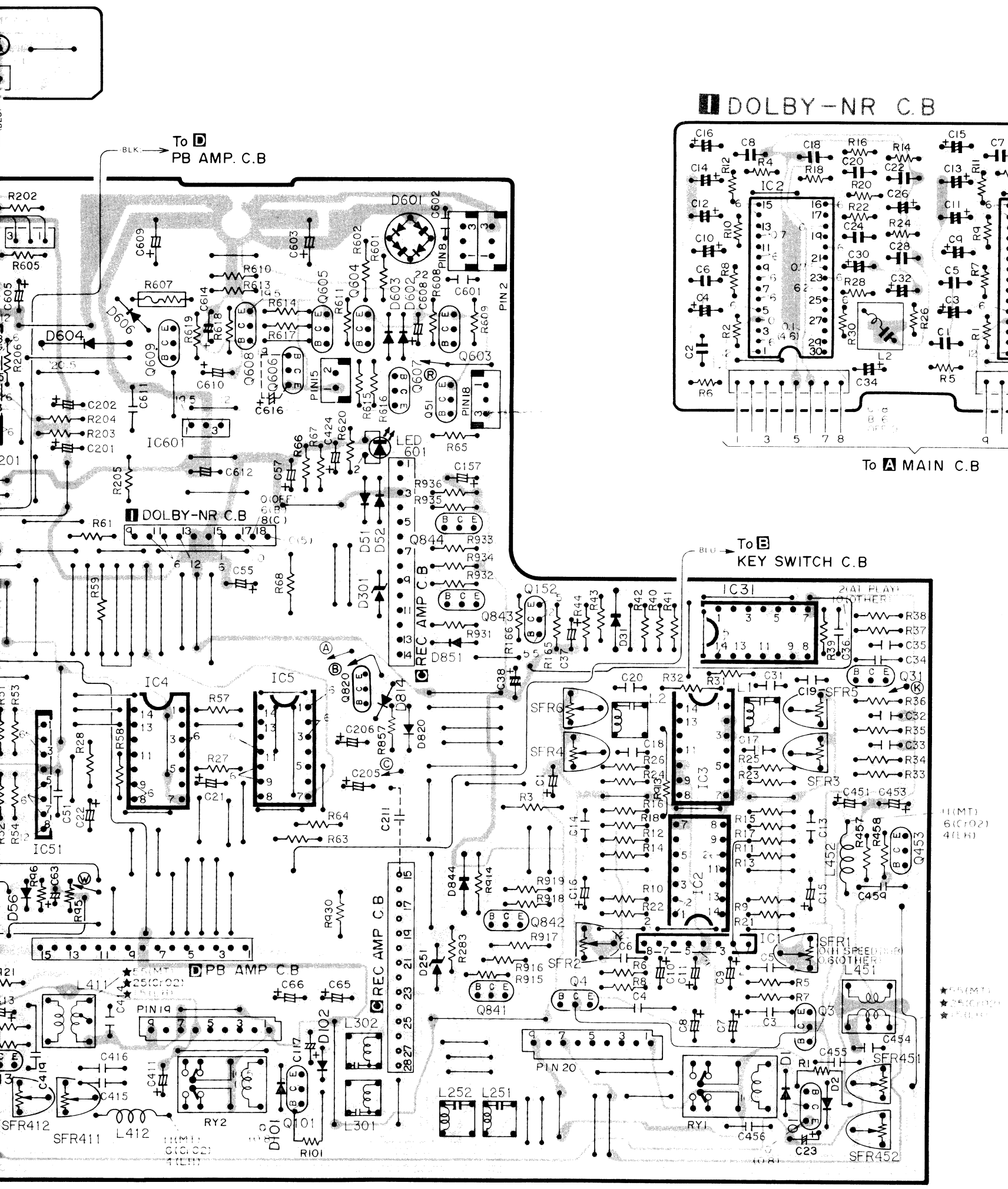


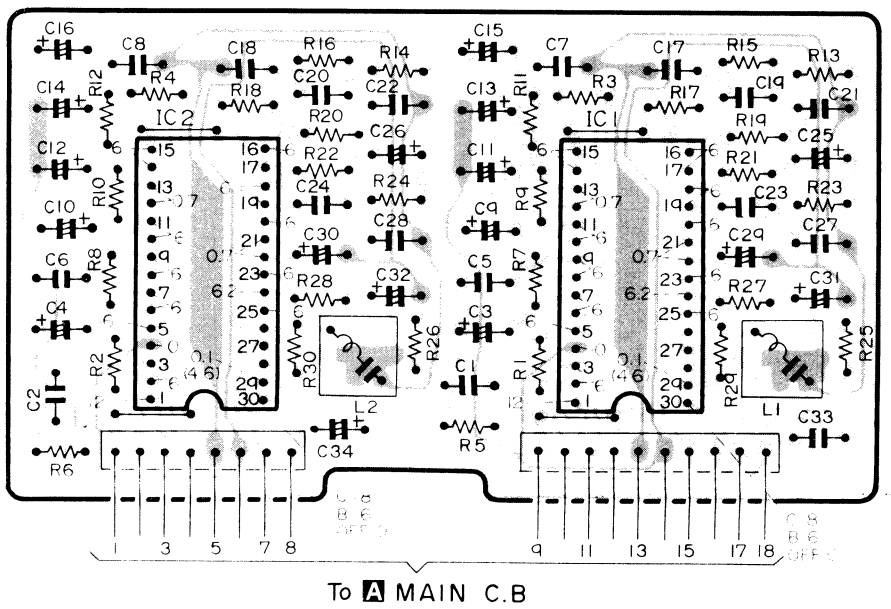
TC4051BP






A MAIN C.B
P SUB C.B
Q601
To L DECK-2 C.B PIN12
CON12
LINE IN /REC
LINE OUT / PLAY
J1 LEFT
J2 RIGHT
J3
J4
To E DISPLAY
To C REC AMP C.B
R405
C402
L401
C403
Q401
C401
R404
R563
C559
Q57
R83
Q55
R84
R79
R85
Q56
R47
R80
R81
Q58
R82
R86
R87
R92
D53
C560
R88
Q59
D54
R93
R91
C606
Q53
R402
Q610
C607
R201
Q602
R604
C604
R603
R606
D607
R202
R605
C605
D606
D604
R607
C609
Q609
L202
R208
R206
C204
C203
R207
IC201
C202
R204
R203
C201
C611
IC60
C208
PIN14
C207
L201
DOLBY-NR C.B
R205
R61
R60
R62
C56
R59
IC805
R94
C6
C556
IC551
R554
C554
R562
R69
R556
C552
R558
R552
Q54
R70
R557
C551
R551
R555
R561
C555
R553
PIN3
R72
R71
C557
C553
R560
R554
C60
C59
R78
R77
R349
IC808
D55
C806
C807
R929
R925
R924
D848
R928
C62
C61
R75
IC4
R73
C53
R55
R51
R53
R28
R58
R74
C54
R56
R52
R54
IC51
C51
C22
R76
IC6
R868
D842
R922
R923
Q850
D847
IC807
R88
D841
D56
R96
C63
R95
R420
R842
R839
C827
Q812
Q811
Q814
R840
R819
R820
R821
R822
D808
D812
R838
R837
C805
D848
D846
R926
D803
D802
D807
Q813
C804
IC802
R837
R838
R843
RA801
D801
RA802
RA803
D805
C806
C807
R815
R816
R814
R813
Q810
PIN1
PIN13
PIN15
RA804
RA805
PIN11
R869
R870
R871
R872
R873
Q832
Q831
R855
D832
D830
C816
L801
D811
D818
R856
R852
Q821
R859
R858
R851
C817
D819
Q817
PIN10
R835
R833
R832
C810
R834
C809
R829
R830
R836
R831
R828
R827
Q808
R826
R825
C808
Q809
Q60
C553
R555
C555
C822
PIN24
C825
R927
R560
R554
R862
R863
R874
R164
D827
Q827
Q829
D826
Q828
R861
PIN16
R846
Q815
R865
Q824
R867
R866
Q825
R864
D829
Q826
D823
Q823
PIN17
RA806
R877
R879
C830
Q835
IC803
R878
R876
Q834
R881
R880
R803
Q801
R802
C801
R801
R804
R807
R806
R805
R808
R809
R810
C803
IC804
R812
R811
R875
Q833
R848
PIN21
C814
Q818
R854
R853
Q819
R818
Q802
R817
C802
R824
Q822
R849
D813
C826
R860
D817
C815
R417
R418
R419
C412
C413
C414
L411
R421
Q816
D843
D845
R823
R850
PIN7
D805
D804
Q805
Q807
Q806
Q803
Q804
D847
D802
D803
D807
D808
D812
D801
D845
D805
D804
D843
D842
D841
D56
D846
D848
D847
D802
D803
D807
D808
D812
D801
D813
D817
D804
D805
D845



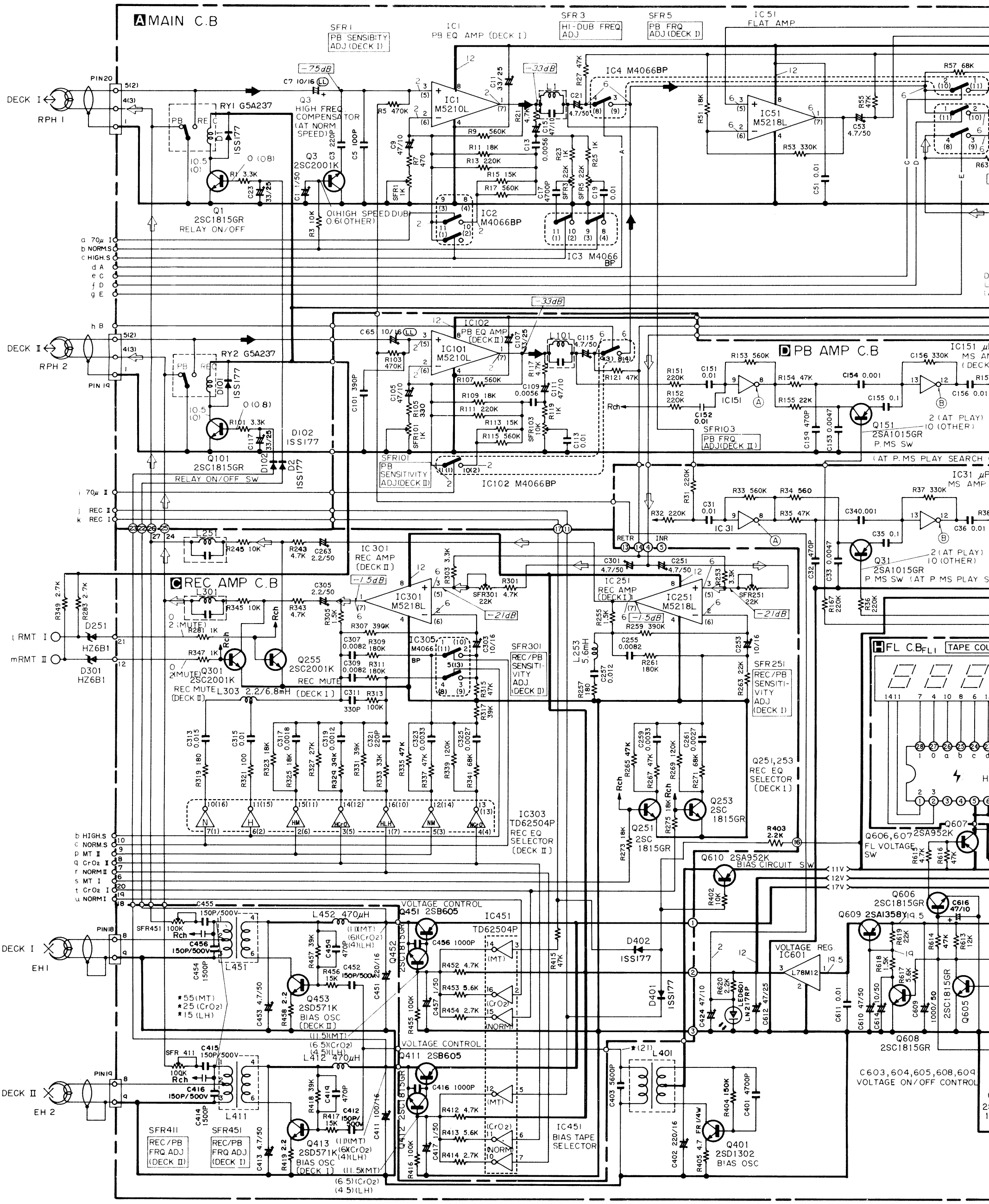


C-MOS IC handling precaution

The C-MOS IC's construction makes this part susceptible to damage by static electricity and so take sufficient care in regard to following articles.

1. Need to be put on conductive sheet, to be put in a metallic box and to be wrapped by aluminium foil for transportation and deposit.
2. To use solder iron less than 40W (less than 260℃) of power consumption for soldering. But do not overheat more than 10 second.
3. Do not perform a conductivity test with a tester, etc. Refer to the circuit voltages of each part.
4. The ICs on the electrical parts which are indicated by an C-MOS IC symbol mark ( ).

SCHEMATIC DIAGRAM–1 (AD-WX200, WX20)



NOTES:

1) ■ B (+) power supply
2) ➡ Signal path
   ⇨ Rec path

⚠ Safety component symbol

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

- The ICs on the electrical parts which are indicated by an C-MOS IC symbol mark (ϕ).

11 12 13 14 15 16 17 18 19 20 21

-33dB
R57 68K
R59 5.6K
R61 5.6K
R63 470K
IC5 M4066BP
PB IN
REC IN
DOLBY-NR C.B
REF
REC OUT
OFF /B/C
REC /PB
C55 220/10
C57 22/16
R66 8.2K
R67 100K
R68 47K
Q51 DOLBY-NR B/C LED OFF SW (AT DUB)
Q51 2SC1815GR
R65 100K
D52 ISS177
S2 DOLBY B-C NR
PIN6
SWITCH-1 C.B
MPNITOR
-7.7dB
R75 47K
R73 47K
R71 56K
C59 4.7/50
IC6 M4066BP
Q55,57,58,59,60 LINE MUTE CIRCUIT
C61 4.7/50
R77 2.7K
R79 560
-11dB
Q55 2SC 2001K
Q57 2SA1015GR
R86 4.7K
17V
2SC1815GR X 2
R97 47K
R87 47K
R84 1K
Q58
R88 56K
RESET
D54 MC421
R93 1M
Q59
METER MUTE Q53 2SC 2001K
0.6 (AT STOP)
0 (OTHER)
R69 12K
R91 100
R81 220K
R92 470
R85 47K
D53 ISS177
IC807
R94 100K
Q60 2SC1815GR
C63 0.22/50
R96 1M
R95 100K
D56 ISS177
REC II j
REC I k
LMT x
H y
F z
SMT a1
O.DUBB b1
LINE OUT /PLAY
J3 LEFT
J4 RIGHT
Rch
LINE IN /REC
J1 LEFT
J2 RIGHT
INPUT
-13dB
IC201 REC INPUT BUFFER AMP
IC201 M5218L
R205 150K
C201 1/50
R201 22K
R203 47K
C560 0.01
VOLUME C.B
L201
C205 2.2/50
VR201 10K(A)
C207 3300P
C203 10/16
R207 2.7K
RECORD LEVEL
IC151 μPD4069 MS AMP (DECK I)
C156 330K
R158 330K
R157 120K
C156 0.01
R159 27K
C155 0.1
Q151 2SA1015GR P.MS SW
2 (AT PLAY)
10 (OTHER)
(AT P.MS PLAY SEARCH ON)
R160 680K
R161 1M
R162 560K
D151 ISS177
R163 22K
C158 1/50
IC151
Q152 2SC1815GR
R166 3.3K
R165 2.7K
C157 47/10
R164 47K
IC31 μPD4069UBC MS AMP (DECK I)
R37 330K
R39 330K
R38 120K
C36 0.01
R40 27K
C35 0.1
Q31 2SA1015GR P.MS SW
R41 680K
R42 1M
R43 560K
D31 ISS177
R44 22K
C38 100/16
IC 31
C37 1/50
R45 47K
C551 0.022
IC551 M5218L
R559 10K
R551 680K
R553 270K
C553 220/10
R555 15
C555 0.001
C557 220/10
R560 10K
R561 150K
R557 10K
CON24
J5 PHONES
SWITCH -1 C.B
MS II c1
MS I d1
PB I e1
PB II f1
FL C.B FL1
TAPE COUNTER/DECK II
REEL PULSE gi
UP /DOWN hi
RESET ll
CASSETTE
CON7
REC I
REC II
DERECTION
MODE II
MODE I
CON6
CON3
DISPLAY C.B
R501 10
R502 150
R503 220K
C501 1/50
R504 1K
D501 RD2.2EB
D502 ISS177
IC501 HD38702A37 CONTROLER
FL COUNTER
RESET
TEST
VFL
VDD
OSC
Vss
R505 30K
100P
C503
C504 220/10
D504 DS446
C505 33/25
D503 DS446
Q607 2SA952K
Q606,607
FL VOLTAGE SW
R615 4.7K
R616 47K
R506 560
R507 1.5K
R508 560
R509 1.5K
R515 1K
LED501,503,504 LN217RP
LED505~508 GL9NG4
LED502: LN317GP
LED509~514 LN217RP
R510 1.5K
R511 1.5K
R512 560
R513 1.5K
IC503 IR2E19
IC504 IR2E19
R521 1K
R563 100 1/4W
C559 330/16
LED515~520 LN317GP
LED521~530 LN217RP
C507 22/16
R517 12K
R519 27K
C508 22/16
R518 12K
R520 2.7K
Q606 2SC1815GR
2SA1358
C616 47/10
R607 10 1/2W
D606 S5277B
R619 22K
R614 47K
R613 12K
R610 12K
D607 ISS177
Q604 2SC1815GR
R611 5.6K
Q605 2SC1815GR
R618 1.5K
R617 5.6K
C614 10/50
C609 1000/50
Q608 2SC1815GR
R609 12K
R608 120K
Q603 2SC 1815GR
C608 10/16
Q601 2SD1276QP
SUB C.B
2SD1275QP
R603 4.7 1/2W
Q602
VOLTAGE CONST. (LOGIC PART)
S2V10
D604 20.5
D601 2B4B41
C606 47/25
C605 1000/16
R606 47K
R605 1.2K
R604 1.2K
C604 47/25
C607 47/10
C603 1000/50
C602 0.01
R602 220
C601 0.01
R601 220
D603 DS446
D602 DS446
PIN15
S1 POWER ON↔STANDBY
SWITCH-2 C.B
PT1
F1 630mA T
240V
220V
120V
S4 VOLTAGE SELECTOR
FUSE C.B
AC120V/220V/240V 50/60Hz (H MODEL)
F1 630mA (U,C MODELS) 250mA "T" (E,K,G,Z MODELS)
AC120V 60Hz (U,C MODELS)
AC240V 50/60Hz (K,G MODELS)
AC220V 50/60Hz (E,Z MODELS)
n 11V
o 5V
w RESET

are indicated by an

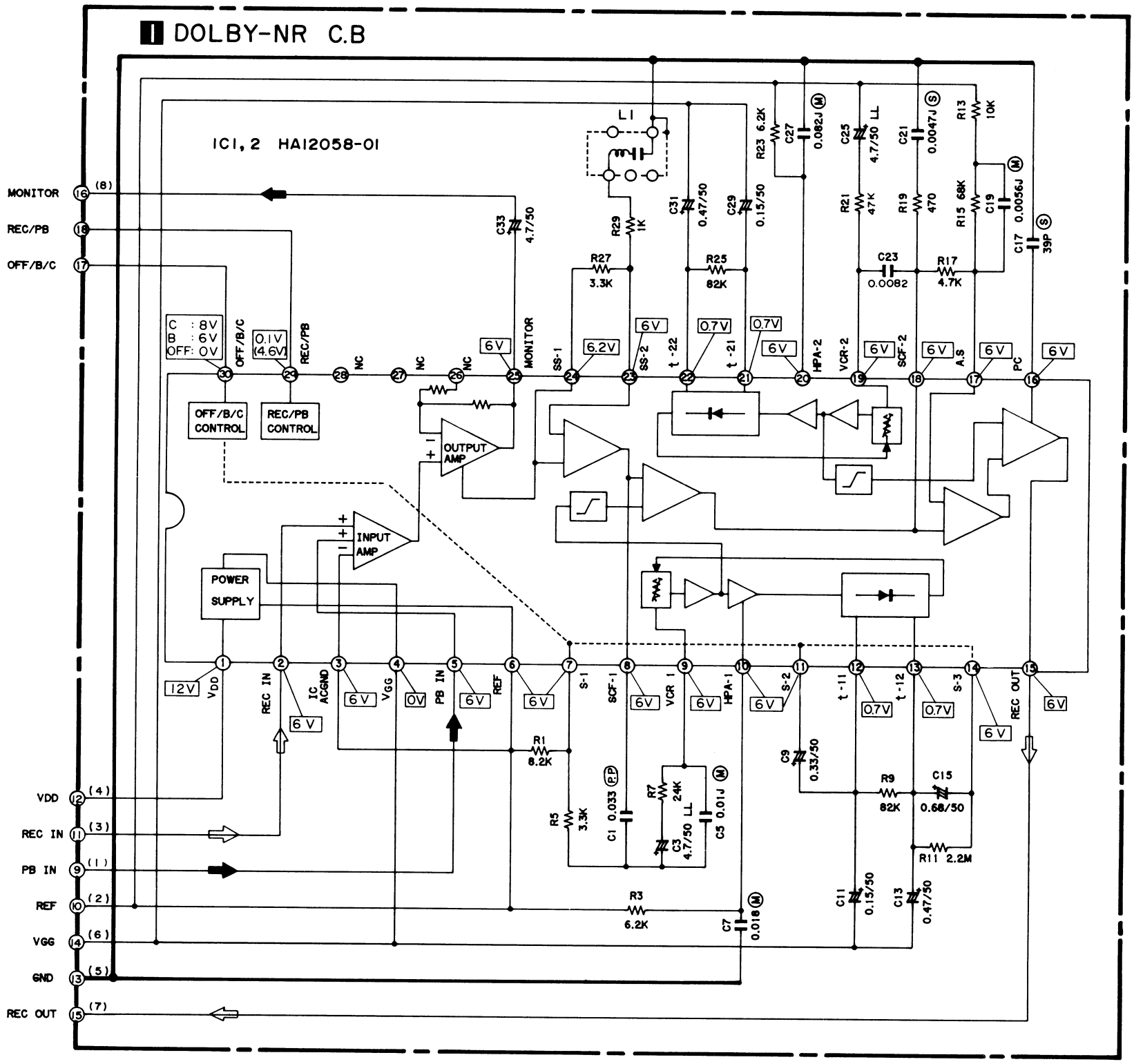
NOTES:

1) ■ B (+) power supply
2) ➡ Signal path
   ⇨ Rec path
3) The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals.
   An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.
4) Resistors with no designation have a rated power of 1/8W and a tolerance of ±5%.
5) Capacitors with no designation have a dielectric strength of less than 50WV.
6) The only capacitor tolerance indicated are ±5% (J) and ±10% (K).
7) Ceramic capacitor symbols:
   —|| — For temperature compensation (SL)
   —|| — High dielectric constant system (YY)
   —|| — High dielectric constant system (YW, YP, YZ)
   —|| — Semiconductor ceramic
   —|| — For temperature compensation (SH)
8) Explanation of symbols
   Ⓜ Mylar capacitor
   Ⓐ Aluminum solid capacitor
   Ⓟ Polypropylene film capacitor
   Ⓑ Bi-polarized capacitor
   Ⓛ Low-leakage capacitor
   Ⓣ Tantalum capacitor
   Ⓢ Styrol capacitor
   Fuse resistor
   Nonflammable resistor

⚠ Safety component symbol
This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications.
Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

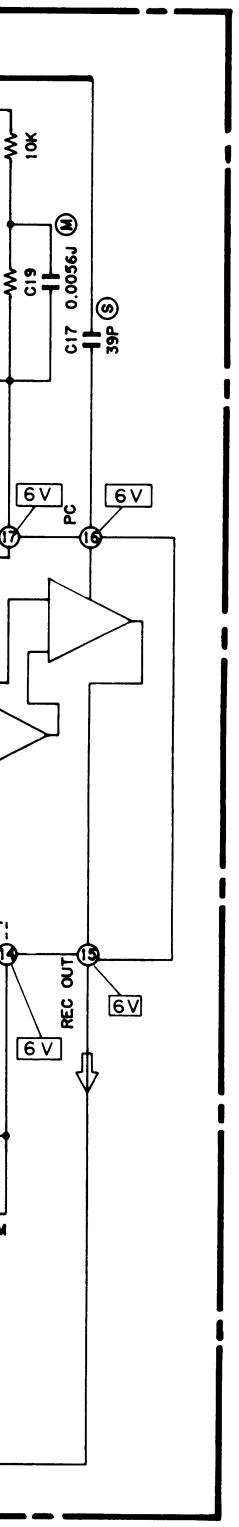
- This schematic diagram is subject to change without notice in the interests of improved performance.

SCHEMATIC DIAGRAM—2 (AD-WX200, WX20)



AD-WX200 HB, CB, EB, KB, GB, ZB UB [AD-WX20]

9 10



WAVEFORMS (AD-WX200,WX20)

Ⓐ V
0V
T

Ⓑ V
0V
T

Ⓒ V
2.5V
2.25V
0V
T

Ⓓ V
5V
0V
T

Ⓔ V
2.5V
0.5V
0V
T
0.2S

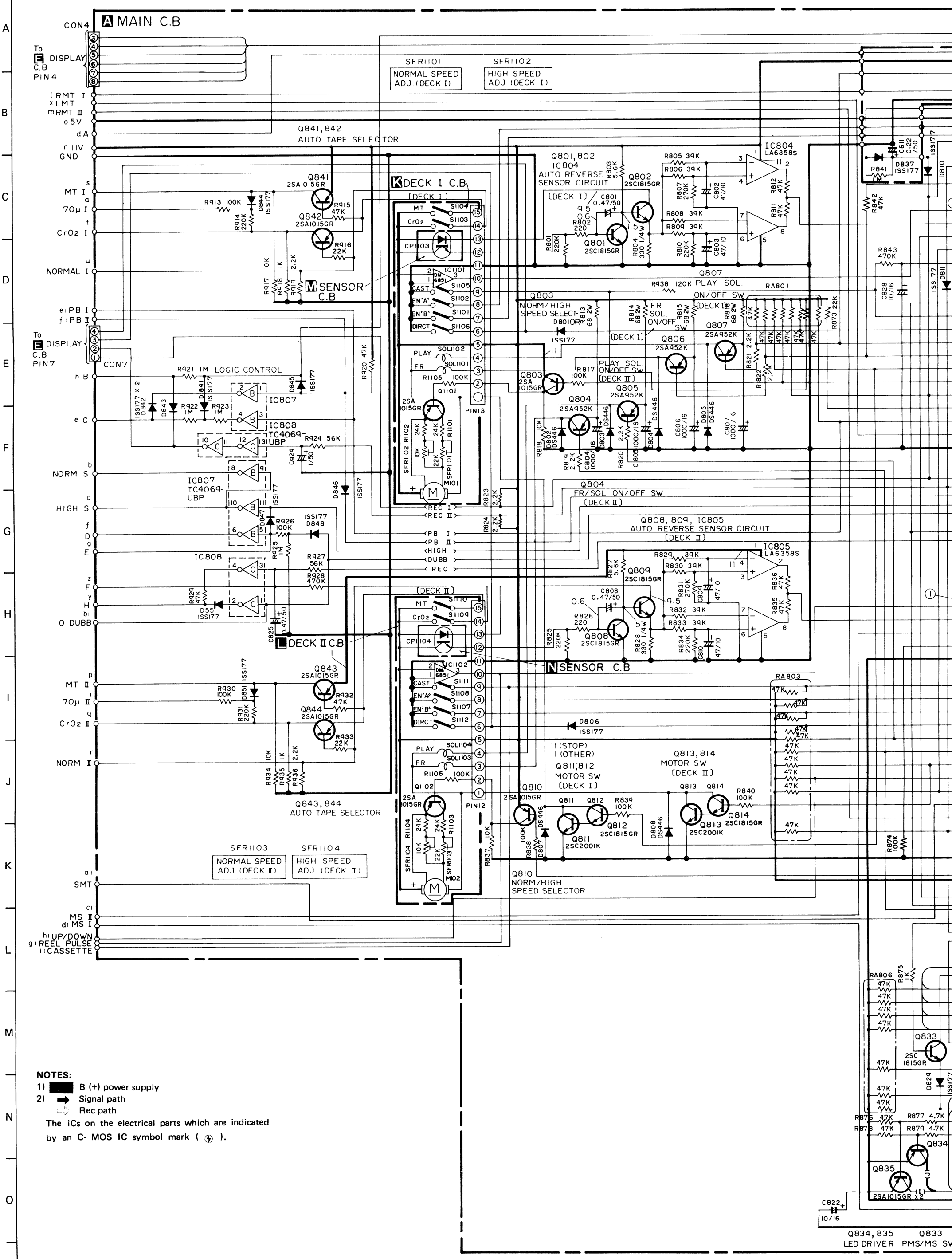
Ⓕ V
5V
0V
T

Ⓖ
0.5V
0V
t
−0.5V
POWER ON
PULL OUT AC CORD

Ⓗ
5V
0V
400KHz

Ⓘ
10V
0V

SCHEMATIC DIAGRAM–3 (AD-WX200, WX20)



NOTES:

1) ■ B (+) power supply
2) ➡ Signal path
   ⇨ Rec path

The ICs on the electrical parts which are indicated by an C- MOS IC symbol mark (⚡).

11 12 13 14 15 16 17 18 19 20 21

D PB AMP C.B

Q815 CONT. REC INHIBIT (AT MAIN REC RELEASE)

IC806 TC4069UBP

B KEY SWITCH C.B

To E DISPLAY C.B RESET

CON23

S735 COUNTER RESET

D813 ISS177

R844 1M

R845 1M

C812 2.2/50

C813 0.1/50

C826 0.1/50

C827 1/50

D814 ISS177

C221 0.001

Q816

PLAY PAUSE SW (AT MS SEARCH)

Q819 I REC SW (AT I/II REC)

C814 22/16

R846 100K

R848 47K

CON10

D817 ISS177

Q818 SIDE A REC INHIBIT

Q815 2SA1015GR

L801

C815 1/50

R844 47K

C816 1000P

R850 47K

Q816 2SC1815GR

5V

R856 390K

Q819 2SA1015GR

I STOP SW

R855 120K

C817 1/50

Q820 2SA1015GR

R857 470K

D820 ISS177

Q821 2SA1015GR RA802

Q817 SIDE B REC INHIBIT

Q817, Q818 2SA1015GR x 2

Q823~Q829 2SA1015GR x 7

LED DRIVE

47K x 16

Q823 I FF SW

I FWD PLAY SW Q824 Q825 Q826

I REW SW

TIMER PLAY CONT

S3 TIMER

TIMER REC

D824

D825

Q827

Q828 REC SW

Q825 I REV PLAY SW

Q829 HIGH SPEED DUB. SW

D826

Q830 PAUSE INHIBIT

R862 470K

R863 470K

R864 470K

R865 470K

R866 470K

R867 470K

D824~D826 ISS177 x 3

2SC1815GR

RA804

R868 100K

R869 47K

R870 47K

R871 47K

RA805

D827 ISS177

R873 22K

LED DRIVER Q831

NAND Q832

2SA 1015GR x 2

R872 4.7K

SWITCH-I C.B

CON11

CON21

D702,703 ISS177 x 2

D704,D705 ISS177 x 2

LED701 LN222RP

LED702 LN422YP

LED703 LN322GP

R.MUT S701

PAUSE S702

STOP S703

H.DUBB S741

N.DUBB S742

S731 REV MODE I

S732 REV MODE II

S733 BLANK SKIP OFF ON

S734 REC MODE I+II II-1

D706 ISS177

D707 ISS177

D708 ISS177

D709 ISS177

D721 ISS177

D722 ISS177

D723 ISS177

R707 470K

R708 470K

R709 470K

RWD

F.F

STOP

Q701 2SB641

Q702 2SB641

Q703 2SB641

R.PLY S707

F.PLY S708

PAUSE S709

R.MUT S710

RECORD S711

D710~D717 ISS177 x 8

Q703 2SB641

LED708 LN322GP

LED709 LN422YP

LED710. 711 LN222RP x 2

LED R.MUT 701 R701 820

LED PAUSE 702 R702 180

LED REV 703 R703 180

LED FWD 704 R704 180

LED H.DUBB 705 R705 820

LED N.DUBB 706 R706 820

LED R.PLY 707 R710 180

LED F.PLY 708 R711 180

LED PAUSE 709 R712 180

LED R.MUT 710 R713 820

LED RECORD 711 R714 820

LN322GP

GL9PR4

D724~D731 ISS177 X 8

D732. D734~D738 ISS177 x 6

MS 1 S715

MS 2 S716

MS 3 S717

MS 4 S718

MS 5 S719

MS 6 S720

MS 7 S721

MS 8 S722

MS 9 S723

SIDE A/B S725

PMS/MS S726

RWD S727

R.PLY S728

F.PLY S729

FF S730

LED715~722 LN222RP x 8

LED MS 9 723 R726 820 LN222RP

LED MS 1 715 R718 220

LED MS 2 716 R719 220

LED MS 3 717 R720 220

LED MS 4 718 R721 220

LED MS 5 719 R722 220

LED MS 6 720 R723 220

LED MS 7 721 R724 220

LED MS 8 722 R725 220

LED TAPE SIDE A 725 R728 180 LN422YP

LED SIDE B 726 R729 180 LN422YP

LED PMS 728 R730 180 LN422YP

LED MS 727 R731 180 LN322GP

IC801 LM6402-596

IC802 LM6402-597

IC803 LM6413-1860

IC801 MPU (DECK I)

IC802 MPU (DECK II)

IC803 PROGRAM MUSIC SENSOR (PMS)

ISS177 x 2

Q822 2SC1815GR

R860 470K

R861 470K

D821 D832

D830 ISS177

RA806 47K x 4

R875 1K

Q833 2SC 1815GR

D829 ISS177

R876 47K

R877 4.7K

R878 47K

R879 4.7K

Q834

Q835

2SA1015GR x 2

RA807 47K x 4

R880 47K

R881 22K

47K

C830 10/16

RESET

Q834, 835 Q833 D DRIVER PMS/MS SW

Practical Service Figure

Wow and flutter:	FWD. side Less than 0.08% REV. side Less than 0.085%
Pinch roller pressure:	290±70g (2.8±0.7N) (DECK I, II)
Take up torque:	30~60g-cm (2.9~5.9mN・m) (DECK I, II)
F. FWD torque:	130±30g-cm (12.7±2.9mN・m) (DECK I, II)
Rewind torque:	130±30g-cm (12.7±2.9mN・m) (DECK I, II)
Back tension:	2.5~5.5g-cm (0.24~0.54mN・m) (DECK I, II)
Playback output: (TTA-161)	580mV±1dB (LINE)
Bias frequency:	100kHz (DECK II)

Playback noise:	Less than 2.0mV (CrO_2, DOLBY B NR ON) Less than 3.0mV (NORMAL, DOLBY NR OFF)
PB/REC Output: (0VU)	380mV±2dB (DECK II)
PB/REC Distortion: (400Hz, 0VU)	METAL: Less than 3.0% (DECK II) CrO_2: Less than 2.5% (DECK II)
PB/REC Signal noise ratio: (400Hz, 0VU) (Unweighted)	More than 42/45dB (DECK II) (METAL, CrO_2 DOLBY B NR OFF/ON) More than 40/43dB (DECK II) (NORMAL, DOLBY B NR OFF/ON)

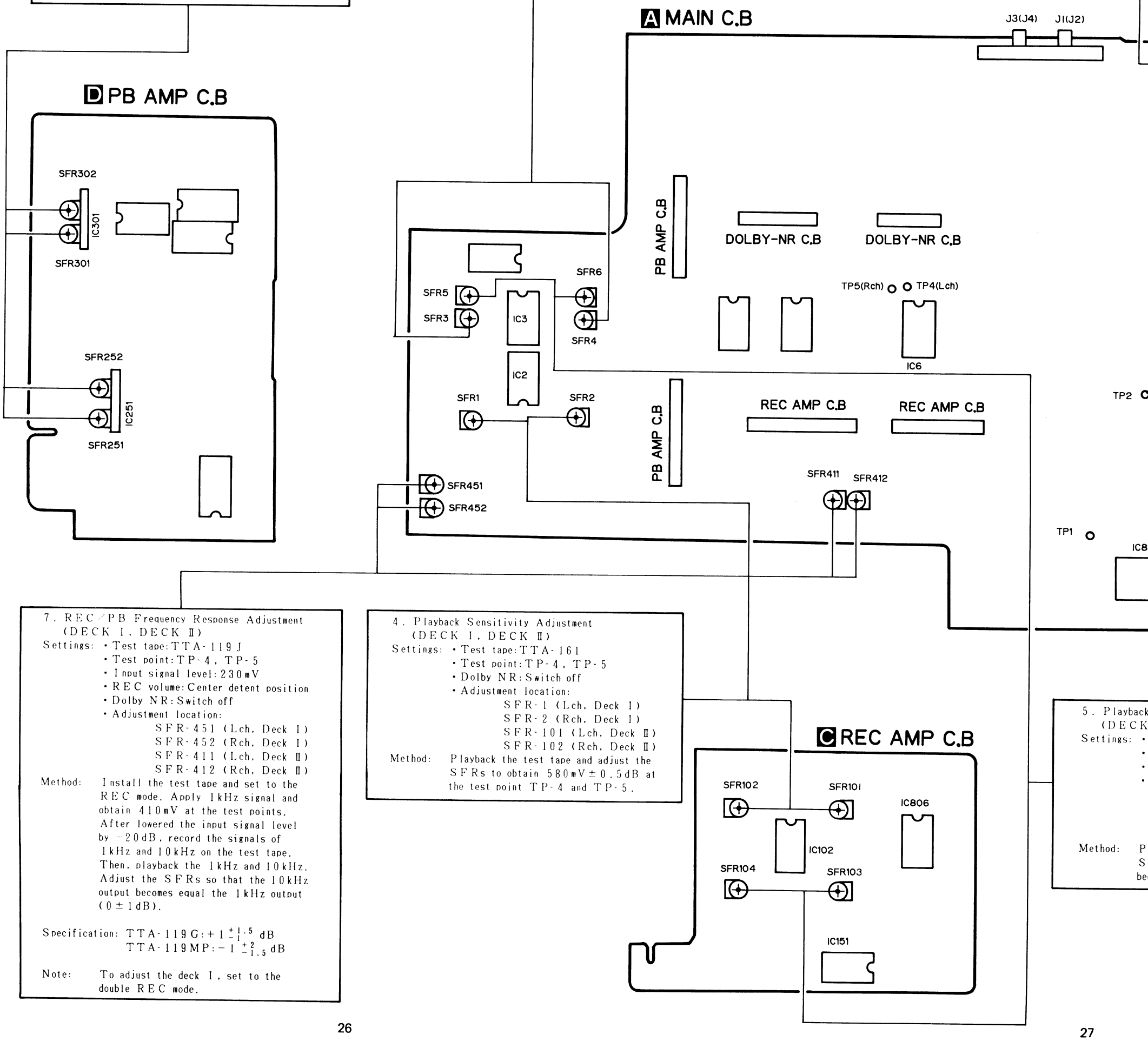
Channel separation: (1kHz, 0VU)	More than 30dB
Erasing ratio: (125Hz)	More than 55dB (DECK II)
Test tape:	・TTA-119MX (METAL) ・TTA-119G (CrO_2) ・TTA-119J (NORMAL)

ADJUSTMENT (AD-WX200, WX20)

8. REC/PB Sensitivity Adjustment
(DECK I, DECK II)
Settings: ・Test tape: TTA-119J
・Test point: TP-4, TP-5
・Dolby NR: Switch off
・Adjustment location:
SFR-251 (Lch, Deck I)
SFR-252 (Rch, Deck I)
SFR-301 (Lch, Deck II)
SFR-302 (Rch, Deck II)
Method: Set to the REC mode. Apply 1kHz signal so as to obtain 410mV at the TP-4 and TP-5. Then, record this level of the signal on the test tape and playback it. Adjust the SFRs until the playback level becomes 410mV±0.5dB.
Specification: TTA-119G: 410mV±1dB
TTA-119MP: 410mV±1.5dB

9. High Speed Dubbing REC/PB
Frequency Response
Settings: ・Test tape: TTA-317H (Deck I)
TTA-119G (Deck II)
・Test point: LINE OUT/PLAY
・Adjustment location: SFR-3 (Lch)
SFR-4 (Rch)
Method: In the high speed dubbing mode, adjust the SFRs to obtain the level difference of +1dB or less between 1kHz and 10kHz signals.
Specification: TTA-119G: 1±3dB
TTA-119MP: 1±3dB

6. Oscillation Frequency Adjustment
Settings: ・Test tape: TTA-119J
・Test point: TP-3
・Adjustment location: L401
Method: Install the test tape and set to the REC mode. Connect a frequency counter to the test point TP-3 and adjust the coil L401 for 100kHz ±300Hz.



7. REC/PB Frequency Response Adjustment
(DECK I, DECK II)
Settings: ・Test tape: TTA-119J
・Test point: TP-4, TP-5
・Input signal level: 230mV
・REC volume: Center detent position
・Dolby NR: Switch off
・Adjustment location:
SFR-451 (Lch, Deck I)
SFR-452 (Rch, Deck I)
SFR-411 (Lch, Deck II)
SFR-412 (Rch, Deck II)
Method: Install the test tape and set to the REC mode. Apply 1kHz signal and obtain 410mV at the test points. After lowered the input signal level by −20dB, record the signals of 1kHz and 10kHz on the test tape. Then, playback the 1kHz and 10kHz. Adjust the SFRs so that the 10kHz output becomes equal the 1kHz output (0±1dB).
Specification: TTA-119G: $+1\,^{+1.5}_{-1}$ dB
TTA-119MP: $-1\,^{+2}_{-1.5}$ dB
Note: To adjust the deck I, set to the double REC mode.

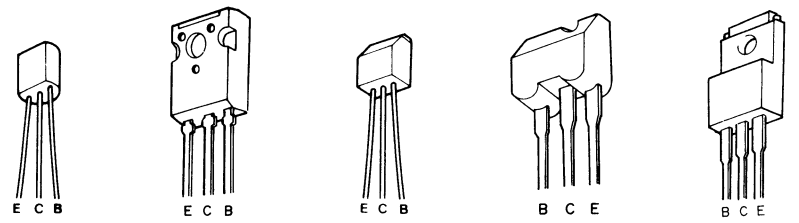
4. Playback Sensitivity Adjustment
(DECK I, DECK II)
Settings: ・Test tape: TTA-161
・Test point: TP-4, TP-5
・Dolby NR: Switch off
・Adjustment location:
SFR-1 (Lch, Deck I)
SFR-2 (Rch, Deck I)
SFR-101 (Lch, Deck II)
SFR-102 (Rch, Deck II)
Method: Playback the test tape and adjust the SFRs to obtain 580mV±0.5dB at the test point TP-4 and TP-5.

5. Playback Freq
(DECK I, D
Settings: ・Test
・Test
・Dolby
・Adjus
Method: Playbac
SFRs
becomes

AD-WX200 HB, CB, EB, KB, GB, ZB UB [AD-WX20] AD-WX200 HB, CB, EB, KB, GB, ZB UB [AD-WX20]

(DECK Ⅱ)

(METAL)
(CrO_2)
(NORMAL)



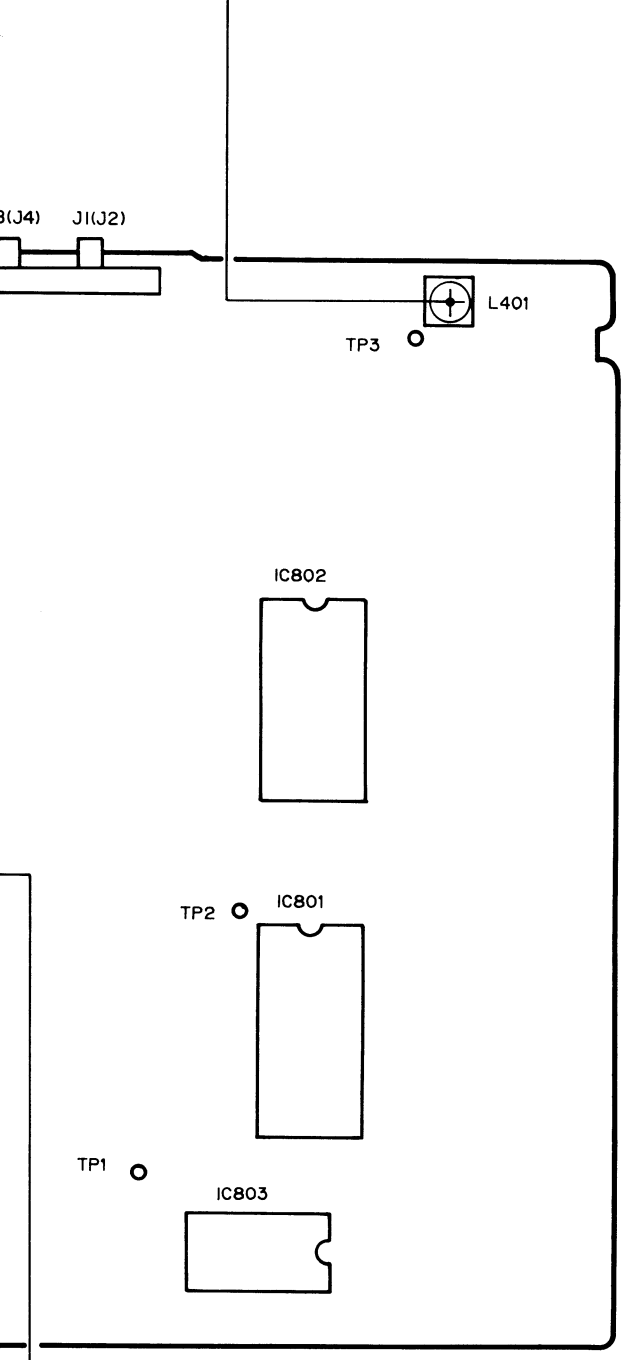
2SA952
2SA1015

2SA1358

2SB605

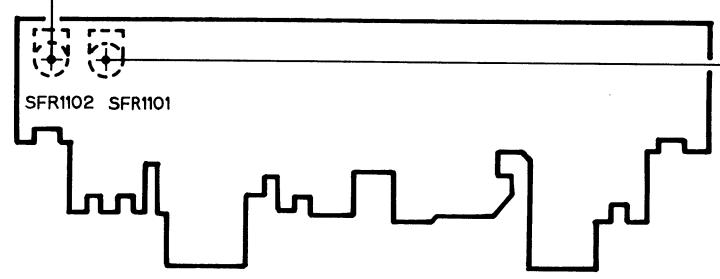
2SB641

2SD1276

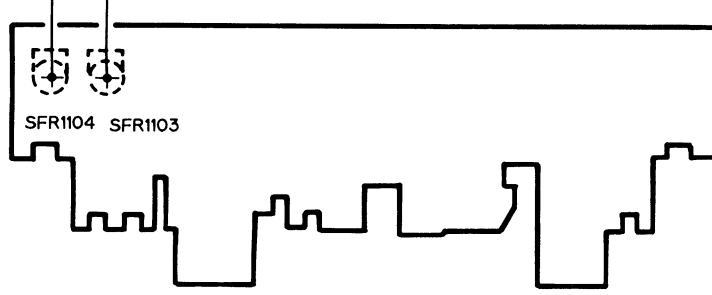


2. High Speed Adjustment
(DECK I, DECK Ⅱ)
Settings: • Test tape: TTA-111H
• Test point: LINE OUT/PLAY
• Adjustment location:
SFR-1102 (Deck I)
SFR-1104 (Deck Ⅱ)
Method: Connect the test point TP-1(TP-2) to the chassis earth so that the mode can be set to the high speed condition. Then, playback the test tape and adjust the SFRs for frequency of 3,000Hz. Make the test point TP-1 (TP-2) free after completed the adjustment.

3. Normal Speed Adjustment
(DECK I, DECK Ⅱ)
Settings: • Test tape: TTA-111
• Test point: LINE OUT/PLAY
• Adjustment location:
SFR-1101 (Deck I)
SFR-1103 (Deck Ⅱ)
Method: Playback the test tape and adjust the SFRs for frequency of 3,000Hz.
Note: Perform the high speed adjustment first, before adjusting this method.

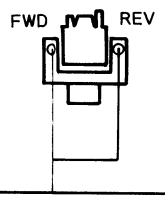


M DECK I C.B



N DECK Ⅱ C.B

R/PB/E HEAD
(DECK I, DECK Ⅱ)

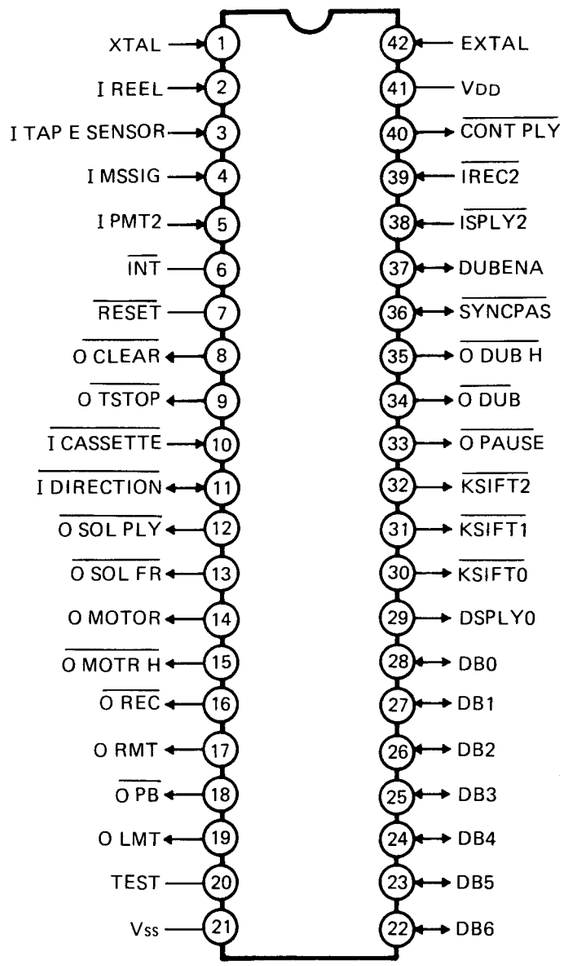


5. Playback Frequency Response Adjustment
(DECK I, DECK Ⅱ)
Settings: • Test tape: TTA-317H
• Test point: LINE OUT/PLAY
• Dolby NR: Switch off
• Adjustment location:
SFR-5 (Lch, Deck I)
SFR-6 (Rch, Deck I)
SFR-103 (Lch, Deck Ⅱ)
SFR-104 (Rch, Deck Ⅱ)
Method: Playback the test tape and adjust the SFRs so that the 10kHz output becomes equal the 1kHz output(0dB).

1. Azimuth Adjustment (DECK I, DECK Ⅱ)
Settings: • Test tape: TTA-317H
• Adjustment location: Azimuth adjustment screw
Method: Playback the 10kHz section of the test tape and adjust the screw for maximum output. Both modes (Forward Play and Reverse Play) must be performed.

DISCRIPTION OF IC TERMINAL
1. IC,LM6402Z

1-1. Terminal name DECK I



Signal flow in the direction indicated by the arrow.

Fig.-1

1-2. Pin function

Pin No.	Pin Symbol	Description			
		Matrix Key Input			LED Indication Output (Lights with "L")
		KSIFT0 is "L"	KSIFT1 is "L"	KSIFT2 is "L"	DSPLY0 is "L"
28	DB0	RVS MODE SW input	REC MUTE key input	REC ENA. B SW input	—
27	DB1	RVS MODE SW input	PAUSE key input	REC ENA. A SW input	REC MUTE indication
26	DB2	—	STOP key input	DOUBLE REC SW input	PAUSE indication
25	DB3	TIMER PLAY SW input	FF key input	CONT. REC SW input	RVS PLAY indication
24	DB4	—	FWD PLAY key input	BLANK SKIP SW input	FWD PLAY indication
23	DB5	HIGH DUB key input	RVS PLAY key input	DOUBLE REC key input	HIGH DUB indication
22	DB6	NOR DUB key input	REW key input	KSTOP2 key input	NOR DUB indication
30	$\overline{\text{KSIFT0}}$	Matrix key inputs and display outputs. KSIFT0 KSIFT1 KSIFT2 DSPLY0 Waveform at pins			
31	$\overline{\text{KSIFT1}}$				
32	$\overline{\text{KSIFT2}}$				
29	DSPLY0				
33	$\overline{\text{O PAUSE}}$	Outputs "L" when the mechanism is in the PAUSE modes.			
1	XTAL	MPU clock input.			
2	IREEL	AUTO STOP detection input.			
3	I TAPE SENSOR	Tape end sensor input.			
4	IMSSIG	MS inter-tune detection input. Set to "L" between tunes.			
5	IPMTII	PLAY MUTE control input.			
6	$\overline{\text{INT}}$	Connected to +5 [V].			
7	$\overline{\text{RESET}}$	MPU reset input. MPU is reset with "L".			
8	$\overline{\text{O CLEAR}}$	Outputs "L" when the cassette is removed, the stop key is ressed in F. F/RWD modes and REC is started.			
9	$\overline{\text{O TSTOP}}$	Set to "L" when the reel disk stops and no cassette is in the mechanism. Outputs "H" when one of F. F, RWD, FWD PLAY and RVS PLAY keys is pressed.			
10	$\overline{\text{I CASSETTE}}$	Cassette detection input. Set to "L" when a cassette is in.			
11	$\overline{\text{I DIRECT.}}$	Head direction detection input/output. With "L", the head faces the forward side.			
12	$\overline{\text{O SOL PLY}}$	PLAY plunger output. With "L", the plunger is attracted. (Refer to the timing chart)			
13	$\overline{\text{P SOL FR}}$	FF/RWD plunger output. With "L", the plunger is attracted. (Refer to the timing chart)			

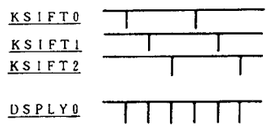
Pin No.	Pin Symbol	
14	O MOTOR	Motor ON/OFF output.
15	$\overline{\text{O MOTRH}}$	Motor high-speed output.
16	$\overline{\text{O REC}}$	REC output. Set to "L" PLAY PAUSE modes.
17	O RMT	REC MUTE output. Se
18	$\overline{\text{O PB}}$	Set to "L" when the deck
19	O LMT	LINE MUTE output. the PLAY mode.
20	TEST	Connected to 0 [V].
21	Vss	
34	$\overline{\text{O DUB}}$	Set to "L" during DUB.
35	$\overline{\text{O DUB. H}}$	Set to "L" during High-
36	$\overline{\text{SYNCPAS}}$	Set to "H" during DUB. REV when this pin is se
37	DUBENA	DUB start output and D
38	$\overline{\text{ISPLYII}}$	Input to detect the DEC
39	$\overline{\text{IRECII}}$	Input to detect the DEC
40	$\overline{\text{CONTPLY}}$	Continuous play output.
41	V_{DD}	Connected to +5 [V].
42	EXTAL	

— EXTAL
— VDD
→ $\overline{\text{CONT PLY}}$
— $\overline{\text{IREC2}}$
— $\overline{\text{ISPLY2}}$
→ DUBENA
→ $\overline{\text{SYNCPAS}}$
→ $\overline{\text{O DUB H}}$
→ $\overline{\text{O DUB}}$
→ $\overline{\text{O PAUSE}}$
→ $\overline{\text{KSIFT2}}$
→ $\overline{\text{KSIFT1}}$
→ $\overline{\text{KSIFT0}}$
→ DSPLY0
→ DB0
→ DB1
→ DB2
→ DB3
→ DB4
→ DB5
→ DB6

the arrow.

Fig.-1

1-2. Pin function

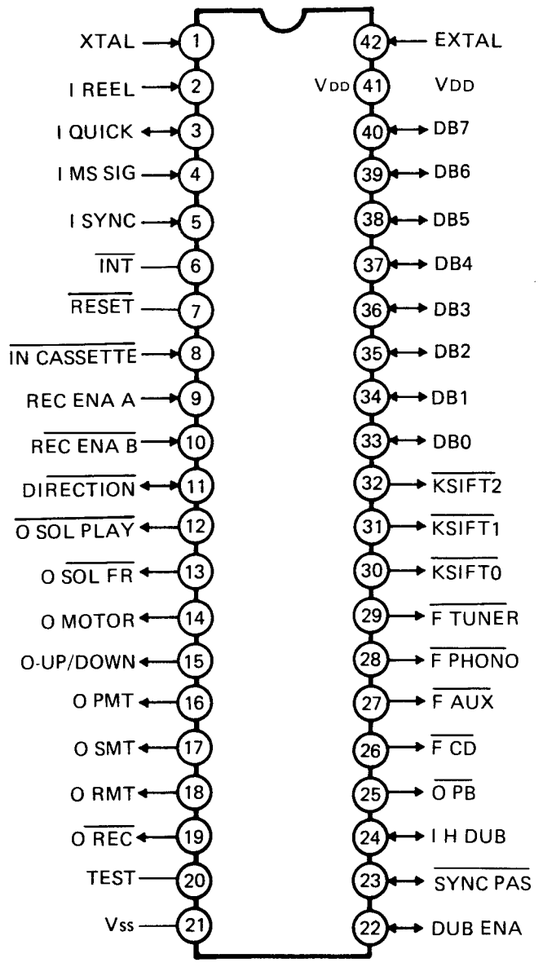
Pin No.	Pin Symbol	Description			
		Matrix Key Input			LED Indication Output (Lights with "L")
		KSIFT0 is "L"	KSIFT1 is "L"	KSIFT2 is "L"	DSPLY0 is "L"
28	DB0	RVS MODE SW input	REC MUTE key input	REC ENA. B SW input	—
27	DB1	RVS MODE SW input	PAUSE key input	REC ENA. A SW input	REC MUTE indication
26	DB2	—	STOP key input	DOUBLE REC SW input	PAUSE indication
25	DB3	TIMER PLAY SW input	FF key input	CONT. REC SW input	RVS PLAY indication
24	DB4	—	FWD PLAY key input	BLANK SKIP SW input	FWD PLAY indication
23	DB5	HIGH DUB key input	RVS PLAY key input	DOUBLE REC key input	HIGH DUB indication
22	DB6	NOR DUB key input	REW key input	KSTOP2 key input	NOR DUB indication
30	$\overline{\text{KSIFT0}}$	Matrix key inputs and display outputs.  Waveform at pins			
31	$\overline{\text{KSIFT1}}$				
32	$\overline{\text{KSIFT2}}$				
29	DSPLY0				
33	$\overline{\text{O PAUSE}}$	Outputs "L" when the mechanism is in the PAUSE modes.			
1	XTAL	MPU clock input.			
2	IREEL	AUTO STOP detection input.			
3	I TAPE SENSOR	Tape end sensor input.			
4	IMSSIG	MS inter-tune detection input. Set to "L" between tunes.			
5	IPMTII	PLAY MUTE control input.			
6	$\overline{\text{INT}}$	Connected to + 5 [V].			
7	$\overline{\text{RESET}}$	MPU reset input. MPU is reset with "L".			
8	$\overline{\text{O CLEAR}}$	Outputs "L" when the cassette is removed, the stop key is ressed in F. F/RWD modes and REC is started.			
9	$\overline{\text{O TSTOP}}$	Set to "L" when the reel disk stops and no cassette is in the mechanism. Outputs "H" when one of F. F, RWD, FWD PLAY and RVS PLAY keys is pressed.			
10	$\overline{\text{I CASSETTE}}$	Cassette detection input. Set to "L" when a cassette is in.			
11	$\overline{\text{I DIRECT.}}$	Head direction detection input/output. With "L", the head faces the forward side.			
12	$\overline{\text{O SOL PLY}}$	PLAY plunger output. With "L", the plunger is attracted. (Refer to the timing chart)			
13	$\overline{\text{P SOL FR}}$	FF/RWD plunger output. With "L", the plunger is attracted. (Refer to the timing chart)			

Pin No.	Pin Symbol	Description
14	O MOTOR	Motor ON/OFF output. With "L", the motor is stopped.
15	$\overline{\text{O MOTRH}}$	Motor high-speed output. With "L", the motor rotates at high-speed.
16	$\overline{\text{O REC}}$	REC output. Set to "L" only in the REC, PLAY REC PAUSE and PLAY PAUSE modes.
17	O RMT	REC MUTE output. Set to "L" in the REC and PLAY modes.
18	$\overline{\text{O PB}}$	Set to "L" when the deck is in the PLAY mode.
19	O LMT	LINE MUTE output. Outputs "L" when either DECK I or DECK II is in the PLAY mode.
20	TEST	Connected to 0 [V].
21	Vss	
34	$\overline{\text{O DUB}}$	Set to "L" during DUB.
35	$\overline{\text{O DUB. H}}$	Set to "L" during High-Speed DUB.
36	$\overline{\text{SYNCPAS}}$	Set to "H" during DUB. Set to "L" before PLAY is switched to CUE/REV when this pin is set to "H" or "L", PAUSE is commanded.
37	DUBENA	DUB start output and DUB stop input/output. Set to "H" during DUB.
38	$\overline{\text{ISPLYII}}$	Input to detect the DECK II $\overline{\text{SOL PLAY}}$ output.
39	$\overline{\text{IRECII}}$	Input to detect the DECK II $\overline{\text{OREC}}$ output.
40	$\overline{\text{CONTPLY}}$	Continuous play output.
41	VDD	Connected to + 5 [V].
42	EXTAL	

Table 1

2. IC,LM6402-597

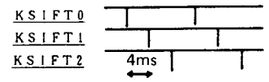
2-1. Terminal name DECK II



Signal flow in the direction indicated by the arrow.

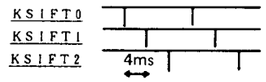
Fig.2

2-2. Pin function

Pin No.	Pin Symbol	Description			
		Matrix Key Input			LED Indication Output (Lights with "L")
		KSIFT0 is "L"	KSIFT1 is "L"	KSIFT2 is "L"	KSIFT0,1,2 are "H"
33	DB0	REC key input	—	—	—
34	DB1	REC MUTE key input	—	—	—
35	DB2	PAUSE key input	—	—	—
36	DB3	STOP key input	RVS MODE SW input	—	REC indication
37	DB4	FF key input	RVS MODE SW input	—	REC MUTE indication
38	DB5	FWD PLAY key input	TIMER REC SW input	CONT. PLAY SW input	PAUSE indication
39	DB6	RVS PLAY key input	TIMER PLAY SW input	BLANK SKIP SW input	FWD PLAY indication
40	DB7	RWD key input	—	CONT. PLAY start input	RVS PLAY indication
30	$\overline{\text{KSIFT0}}$	Matrix key input, and output to switch the indicator output.  Waveform at pins			
31	$\overline{\text{KSIFT1}}$				
32	$\overline{\text{KSIFT2}}$				
29	$\overline{\text{FTUNER}}$	Set to "L" in REC, PLAY, REC PAUSE and PLAY PAUSE modes of each function.			
28	$\overline{\text{FPHONO}}$				
27	$\overline{\text{FAUX}}$				
26	$\overline{\text{FCD}}$				
25	$\overline{\text{OPB}}$	Set to "L" when the deck is in the PLAY mode.			
22	DUBENA	DUB start input and DUB stop output. Set to "H" during DUB.			
23	$\overline{\text{SYNC PAS}}$	DUB PAUSE ON/OFF input. With "L", this becomes the syncrate output in PAUSE PHONO/CD REC mode.			
24	IHDUB	High-speed DUB input.			
2	IREEL	AUTO STOP detection input.			
3	IQUICK	Tape end sensor input.			
4	IMSSIG	MS inter-tune detection input. Set to "L" between turnes.			
5	ISYNC	PHONO/CD Synchronized REC input. REC mode with "L" and REC PAUSE with "H".			
8	$\overline{\text{I CASSETTE}}$	Cassette detection input. Set to "L" when a cassette is in.			
9	$\overline{\text{I REC ENA A}}$	FWD SIDE erasure prevention input. With "L", REC is enabled.			
10	$\overline{\text{I REC ENA B}}$	RVS SIDE erasure prevention input. With "L", REC is enabled.			

Pin No.	Pin Symbol	
11	$\overline{\text{I DIRECT.}}$	Head direction detection input/
12	$\overline{\text{O-SOL PLAY}}$	PLAY plunger output. With "L (Refer to the timing chart)
13	$\overline{\text{O SOL FR}}$	FF/RWD plunger output. Wit (Refer to the timing chart)
14	O MOTOR	Motor ON/OFF output. With
15	O-UP/DOWN	Electronic counter UP/DOWN With "H", the counter counts up
16	O PMT	PLAY MUTE output. Set to
17	O SMT	REC MONITOR MUTE ou Set to "L" only in the REC, modes.
18	O RMT	REC MUTE output. Set to "L" only in the REC a
19	$\overline{\text{O REC}}$	REC output. Set to "L" only in the REC, modes.
1	XTAL	MPU clock input.
42	EXTAL	
7	$\overline{\text{RESET}}$	MPU reset input. MPU is res
41	VDD	Connected to +5 [V].
6	$\overline{\text{INT}}$	
20	TEST	Connected to 0 [V].
21	Vss	

2-2. Pin function

Pin No.	Pin Symbol	Description			
		Matrix Key Input			LED Indication Output (Lights with "L")
		KSIFT0 is "L"	KSIFT1 is "L"	KSIFT2 is "L"	KSIFT0,1,2 are "H"
33	DB0	REC key input	—	—	—
34	DB1	REC MUTE key input	—	—	—
35	DB2	PAUSE key input	—	—	—
36	DB3	STOP key input	RVS MODE SW input	—	REC indication
37	DB4	FF key input	RVS MODE SW input	—	REC MUTE indication
38	DB5	FWD PLAY key input	TIMER REC SW input	CONT. PLAY SW input	PAUSE indication
39	DB6	RVS PLAY key input	TIMER PLAY SW input	BLANK SKIP SW input	FWD PLAY indication
40	DB7	RWD key input	—	CONT. PLAY start input	RVS PLAY indication
30	$\overline{\text{KSIFT0}}$	Matrix key input, and output to switch the indicator output.  Waveform at pins			
31	$\overline{\text{KSIFT1}}$				
32	$\overline{\text{KSIFT2}}$				
29	$\overline{\text{FTUNER}}$	Set to "L" in REC, PLAY, REC PAUSE and PLAY PAUSE modes of each function.			
28	$\overline{\text{FPHONO}}$				
27	$\overline{\text{FAUX}}$				
26	$\overline{\text{FCD}}$				
25	$\overline{\text{OPB}}$	Set to "L" when the deck is in the PLAY mode.			
22	DUBENA	DUB start input and DUB stop output. Set to "H" during DUB.			
23	$\overline{\text{SYNC PAS}}$	DUB PAUSE ON/OFF input. With "L", this becomes the syncrate output in PAUSE PHONO/CD REC mode.			
24	IHDUB	High-speed DUB input.			
2	IREEL	AUTO STOP detection input.			
3	IQUICK	Tape end sensor input.			
4	IMSSIG	MS inter-tune detection input. Set to "L" between turnes.			
5	ISYNC	PHONO/CD Synchronized REC input. REC mode with "L" and REC PAUSE with "H".			
8	$\overline{\text{I CASSETTE}}$	Cassette detection input. Set to "L" when a cassette is in.			
9	$\overline{\text{I REC ENA A}}$	FWD SIDE erasure prevention input. With "L", REC is enabled.			
10	$\overline{\text{I REC ENA B}}$	RVS SIDE erasure prevention input. With "L", REC is enabled.			

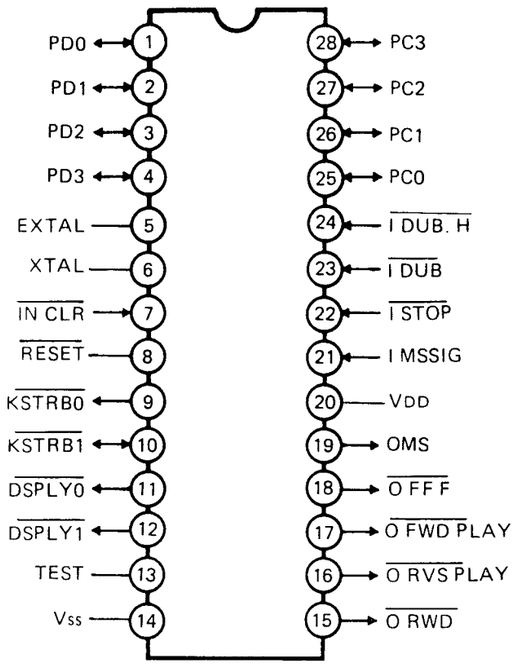
Pin No.	Pin Symbol	Description
11	$\overline{\text{I DIRECT.}}$	Head direction detection input/output. With "L", the head faces FWD SIDE.
12	$\overline{\text{O-SOL PLAY}}$	PLAY plunger output. With "L", the plunger is attracted. (Refer to the timing chart)
13	$\overline{\text{O SOL FR}}$	FF/RWD plunger output. With "L", the plunger is attracted. (Refer to the timing chart)
14	O MOTOR	Motor ON/OFF output. With "L", the motor is stopped.
15	O-UP/DOWN	Electronic counter UP/DOWN output. With "L", the counter counts down. With "H", the counter counts up.
16	O PMT	PLAY MUTE output. Set to "L" only in the PLAY mode.
17	O SMT	REC MONITOR MUTE output. Set to "L" only in the REC, PLAY, REC PAUSE and PLAY PAUSE modes.
18	O RMT	REC MUTE output. Set to "L" only in the REC and PLAY modes.
19	$\overline{\text{O REC}}$	REC output. Set to "L" only in the REC, PLAY, REC PAUSE and PLAY PAUSE modes.
1	XTAL	MPU clock input.
42	EXTAL	
7	$\overline{\text{RESET}}$	MPU reset input. MPU is reset with "L".
41	V_{DD}	Connected to +5 [V].
6	$\overline{\text{INT}}$	
20	TEST	Connected to 0 [V].
21	Vss	

Table 2

3. IC,LM6413-598,HD38702A37

3-1. Terminal name

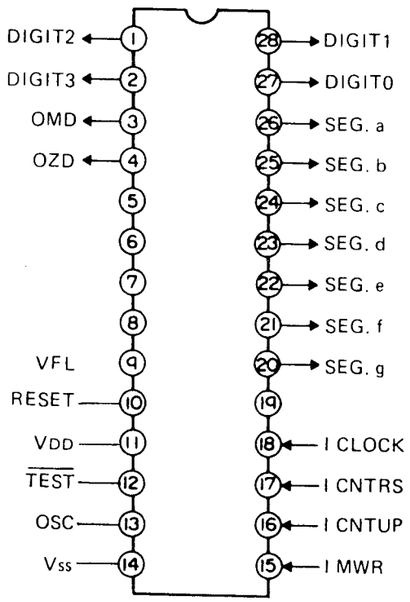
(IC,LM 6413-598)



Signal flow in the direction indicated by the arrow.

Fig.3

(HD38702A37)



Signal flow in the direction indication by the arrow.

Fig.4

3-2. Pin function (LM6413-598)

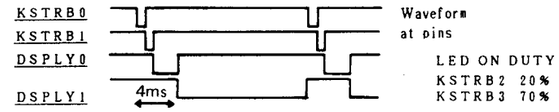
Pin No.	Pin Symbol	Description			
		Matrix Key Input		LED Indication Output (Lights with "L")	
		KSTRB0 is "L"	KSTRB1 is "L"	DSPLY0 is "L"	DSPLY1 is "L"
25	PC0	K NO. 1 key input	K NO. 9 key input	K NO. 1 indication	K NO. 9 indication
26	PC1	K NO. 2 key input	—	K NO. 2 indication	—
27	PC2	K NO. 3 key input	A/B key input	K NO. 3 indication	Side A indication
28	PC3	K NO. 4 key input	PMS/MS key input	K NO. 4 indication	Side B indication
1	PD0	K NO. 5 key input	RWD key input	K NO. 5 indication	PMS indication
2	PD1	K NO. 6 key input	RVS PLAY key input	K NO. 6 indication	MS indication
3	PD2	K NO. 7 key input	FWD PLAY key input	K NO. 7 indication	—
4	PD3	K NO. 8 key input	FF key input	K NO. 8 indication	—
9	$\overline{\text{KSTRB0}}$	Matrix key inputs and display outputs. 			
10	$\overline{\text{KSTRB1}}$				
11	$\overline{\text{DSPLY0}}$				
12	$\overline{\text{DSPLY1}}$				
5	EXTAL	MPU clock input.			
6	XTAL				
7	$\overline{\text{I CLR}}$	With "L", data is cleared.			
8	$\overline{\text{RESET}}$	MPU reset input.			
13	TEST	Connected to 0 [V].			
14	Vss				
15	$\overline{\text{O RWD}}$	RWD key operation output.			
16	$\overline{\text{O RVS PLAY}}$	RVS PLAY key operation output.			
17	$\overline{\text{O FWD PLAY}}$	FWD PLAY key operation output.			
18	$\overline{\text{O FF}}$	FF key operation output.			
19	O MS	Input to detect no-signal sections between tunes with PMS/MS operations. With "H", a tune is detected. With "L", no-signal section is detected.			
20	V_{DD}	Connected to +5 [V].			
21	IMSSIG	Input to detect no-signal sections between tunes with PMS/MS operations. With "H", a tune is detected. With "L", no-signal section is detected.			
22	$\overline{\text{ISTOP}}$	With "L", this IC detects that DECK I reel disks are stopped.			
23	$\overline{\text{IDUB}}$	Set to "L" during DUB.			
24	$\overline{\text{IDUB. H}}$	Set to "L" during High-Speed DUB.			

Table 3

3-3. Pin function (HD38702A37)

Pin No.	Pin Symbol	
18	I CLOCK	Count clock pulse inpu
4	O ZD	Detection output that
3	O HD	Detection output that
17	I CNTRS	Input to set the count
16	I CNTUP	Counter addition/subt down, and with "1", th
15	I MWR	Input to write the cou
27	DIGIT 0	Outputs the digit scan
28	DIGIT 1	
2	DIGIT 2	
3	DIGIT 3	
26	SEG. a	Segment output to ligh
25	SEG. b	
24	SEG. c	
23	SEG. d	
22	SEG. e	
21	SEG. f	
20	SEG. g	
9	V FL	Power supply for the f
10	RESET	Reset pin
11	V_{DD}	V_{DD} pin
12	$\overline{\text{TEST}}$	
13	OSC	Osc pin
14	Vss	Vss pin

- PC3
- PC2
- PC1
- PC0
- $\overline{\text{I DUB. H}}$
- $\overline{\text{I DUB}}$
- $\overline{\text{I STOP}}$
- I MSSIG
- VDD
- OMS
- $\overline{\text{O FF F}}$
- $\overline{\text{O FWD PLAY}}$
- $\overline{\text{O RVS PLAY}}$
- $\overline{\text{O RWD}}$

e arrow.

Fig.3

- DIGIT1
- DIGIT0
- EG. a
- EG. b
- EG. c
- EG. d
- EG. e
- EG. f
- EG. g

- CLOCK
- CNTRS
- CNTUP
- MWR

he arrow.

Fig.4

3-2. Pin function (LM6413-598)

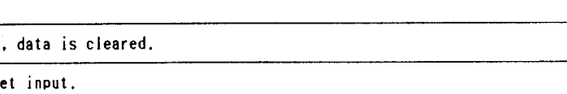
Pin No.	Pin Symbol	Description			
		Matrix Key Input		LED Indication Output (Lights with "L")	
		KSTRB0 is "L"	KSTRB1 is "L"	DSPLY0 is "L"	DSPLY1 is "L"
25	PC0	K NO. 1 key input	K NO. 9 key input	K NO. 1 indication	K NO. 9 indication
26	PC1	K NO. 2 key input	—	K NO. 2 indication	—
27	PC2	K NO. 3 key input	A/B key input	K NO. 3 indication	Side A indication
28	PC3	K NO. 4 key input	PMS/MS key input	K NO. 4 indication	Side B indication
1	PD0	K NO. 5 key input	RWD key input	K NO. 5 indication	PMS indication
2	PD1	K NO. 6 key input	RVS PLAY key input	K NO. 6 indication	MS indication
3	PD2	K NO. 7 key input	FWD PLAY key input	K NO. 7 indication	—
4	PD3	K NO. 8 key input	FF key input	K NO. 8 indication	—
9	$\overline{\text{KSTRB0}}$	Matrix key inputs and display outputs. 			
10	$\overline{\text{KSTRB1}}$				
11	$\overline{\text{DSPLY0}}$				
12	$\overline{\text{DSPLY1}}$				
5	EXTAL	MPU clock input.			
6	XTAL				
7	$\overline{\text{I CLR}}$	With "L", data is cleared.			
8	$\overline{\text{RESET}}$	MPU reset input.			
13	TEST	Connected to 0 [V].			
14	Vss				
15	$\overline{\text{O RWD}}$	RWD key operation output.			
16	$\overline{\text{O RVS PLAY}}$	RVS PLAY key operation output.			
17	$\overline{\text{O FWD PLAY}}$	FWD PLAY key operation output.			
18	$\overline{\text{O FF}}$	FF key operation output.			
19	O MS	Input to detect no-signal sections between tunes with PMS/MS operations. With "H", a tune is detected. With "L", no-signal section is detected.			
20	VDD	Connected to +5 [V].			
21	IMSSIG	Input to detect no-signal sections between tunes with PMS/MS operations. With "H", a tune is detected. With "L", no-signal section is detected.			
22	$\overline{\text{ISTOP}}$	With "L", this IC detects that DECK I reel disks are stopped.			
23	$\overline{\text{IDUB}}$	Set to "L" during DUB.			
24	$\overline{\text{IDUB. H}}$	Set to "L" during High-Speed DUB.			

Table 3

3-3. Pin function (HD38702A37)

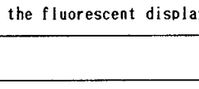
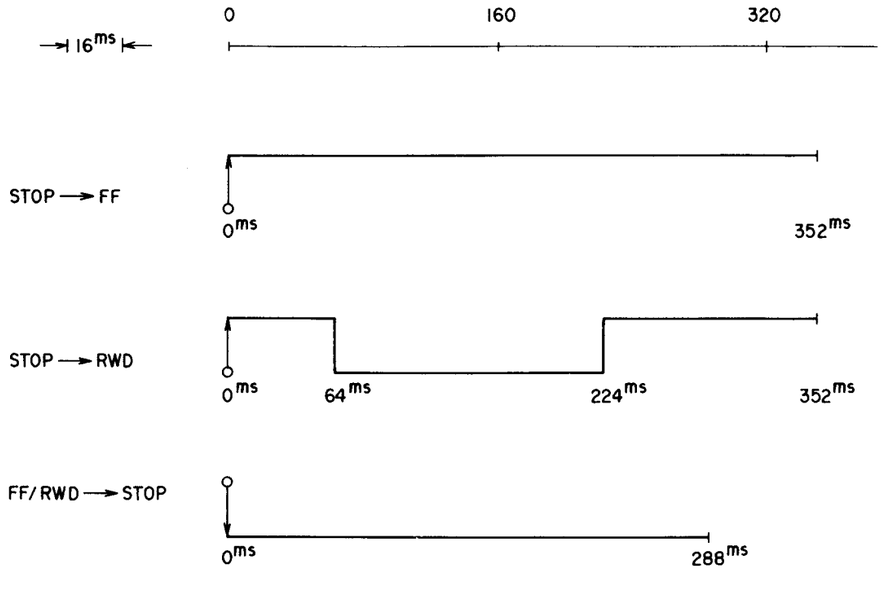
Pin No.	Pin Symbol	Description
18	I CLOCK	Count clock pulse input for the counter.
4	O ZD	Detection output that the counter reaches "0000".
3	O HD	Detection output that the counter value matches the memory value.
17	I CNTRS	Input to set the counter to "0000".
16	I CNTUP	Counter addition/subtraction designation input. With "0", the counter counts down, and with "1", the counter counts up.
15	I MWR	Input to write the counter data into the memory.
27	DIGIT 0	Outputs the digit scan signal to light the fluorescent display dynamically.
28	DIGIT 1	
2	DIGIT 2	
3	DIGIT 3	
26	SEG. a	Segment output to light the fluorescent display dynamically. 
25	SEG. b	
24	SEG. c	
23	SEG. d	
22	SEG. e	
21	SEG. f	
20	SEG. g	
9	V FL	Power supply for the fluorescent display.
10	RESET	Reset pin
11	VDD	VDD pin
12	$\overline{\text{TEST}}$	
13	OSC	Osc pin
14	Vss	Vss pin

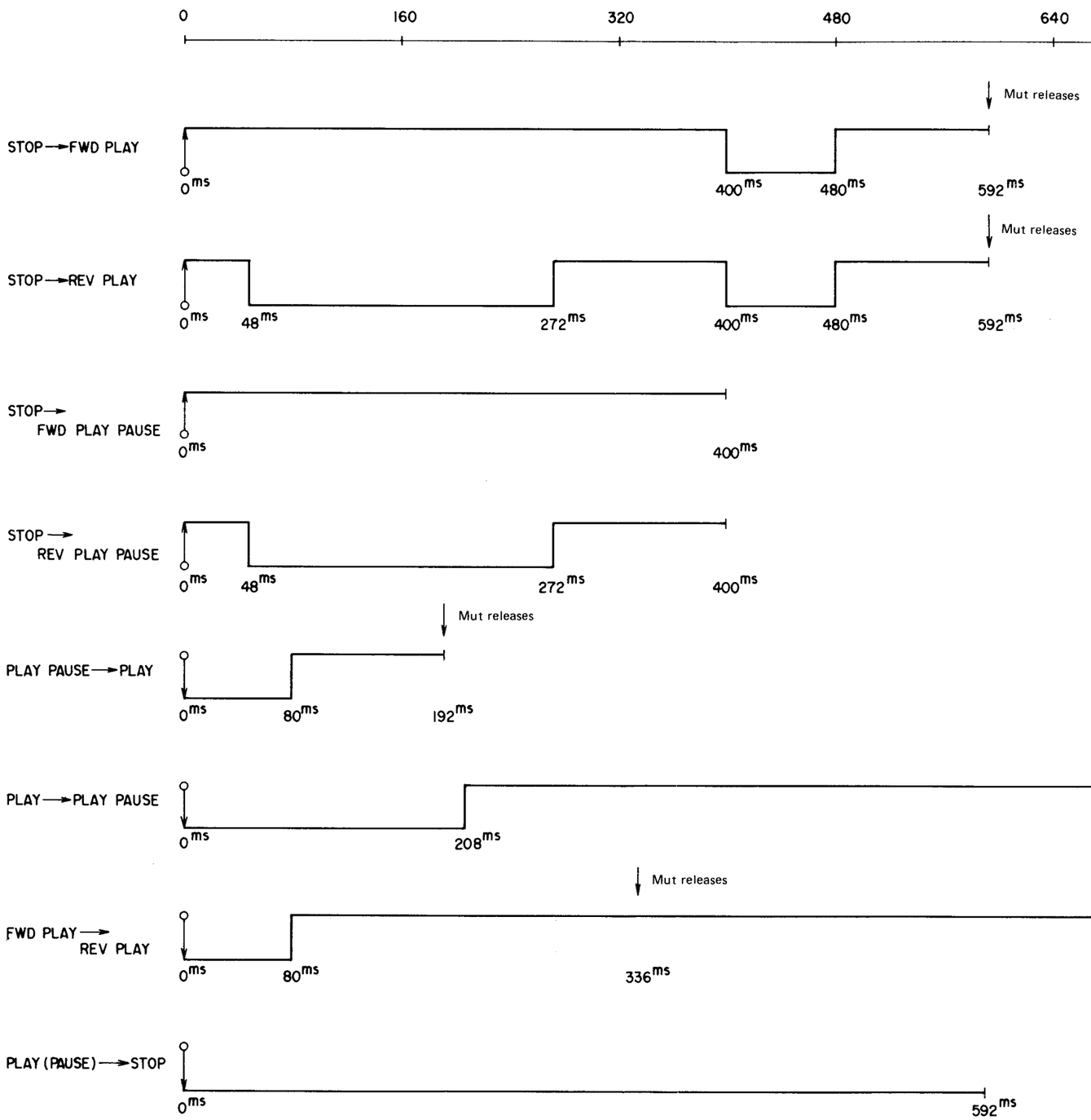
Table 4

TIMING CHART (AD-WX200, WX20)

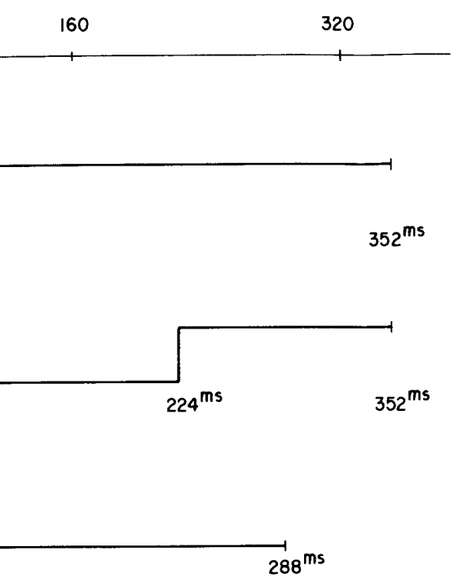


Outputs of micro computer are active-low.

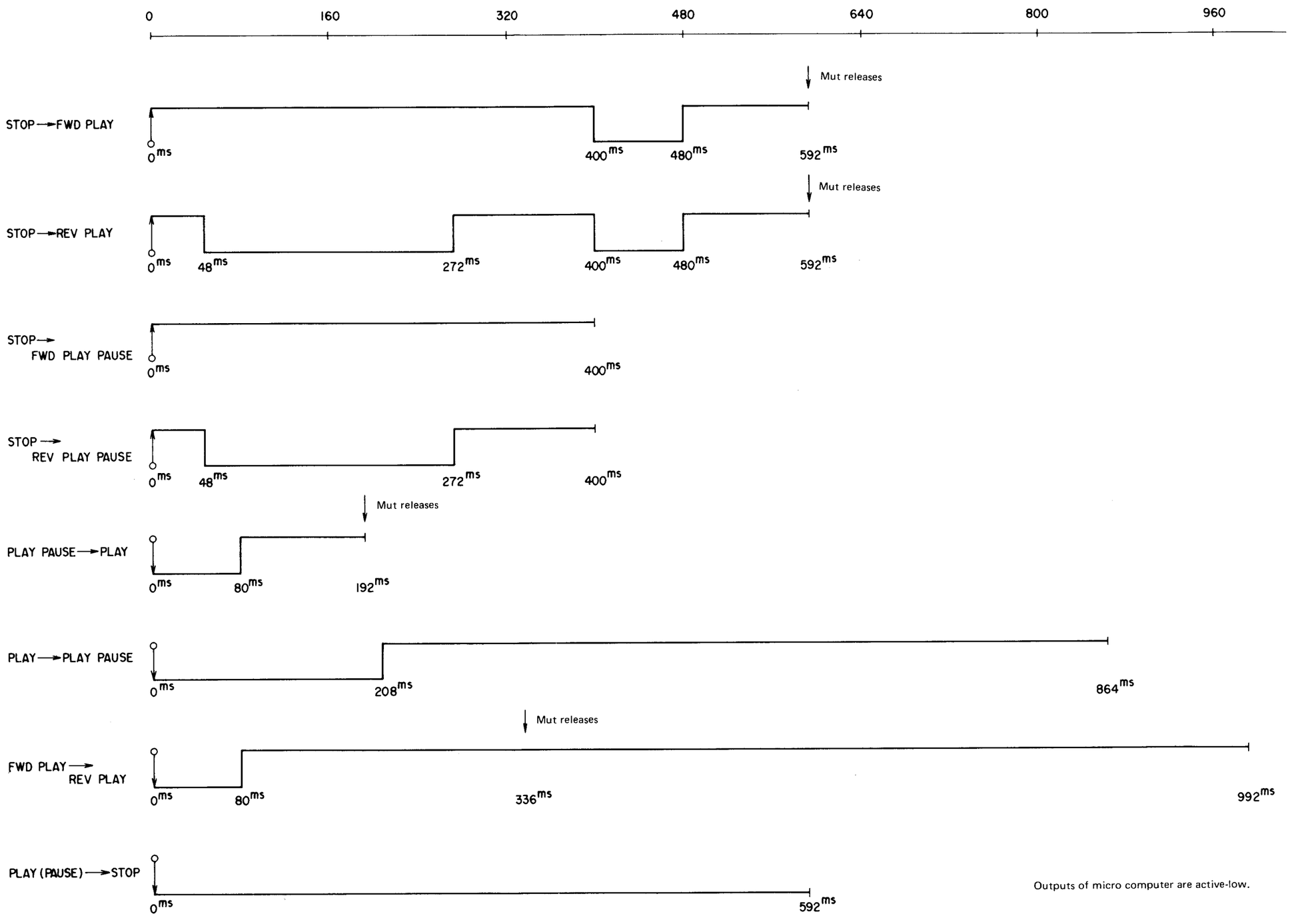
AD-WX200 HB, CB, EB, KB, GB, ZB UB [AD-WX20]



AD-WX200 HB, CB, EB, KB, GB, ZB UB [AD-WX20]



Outputs of micro computer are active-low.

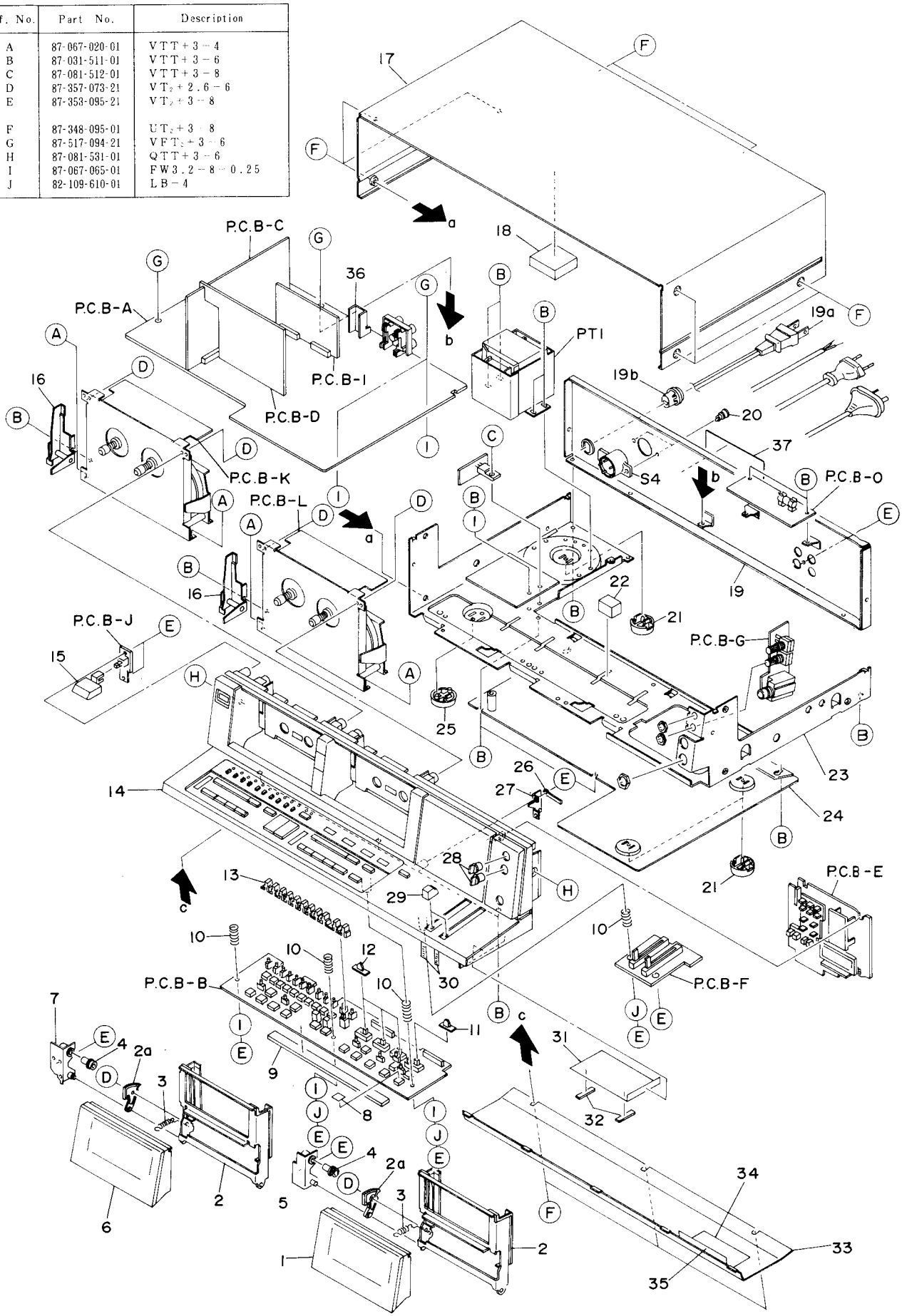


Outputs of micro computer are active-low.

☆ **MEMO** ☆

EXPLODED VIEW-1

Ref. No.	Part No.	Description
A	87-067-020-01	VTT+3-4
B	87-031-511-01	VTT+3-6
C	87-081-512-01	VTT+3-8
D	87-357-073-21	VT$_2$+2.6-6
E	87-353-095-21	VT$_2$+3-8
F	87-348-095-01	UT$_2$+3-8
G	87-517-094-21	VFT$_2$+3-6
H	87-081-531-01	QTT+3-6
I	87-067-065-01	FW3.2-8-0.25
J	82-109-610-01	LB-4



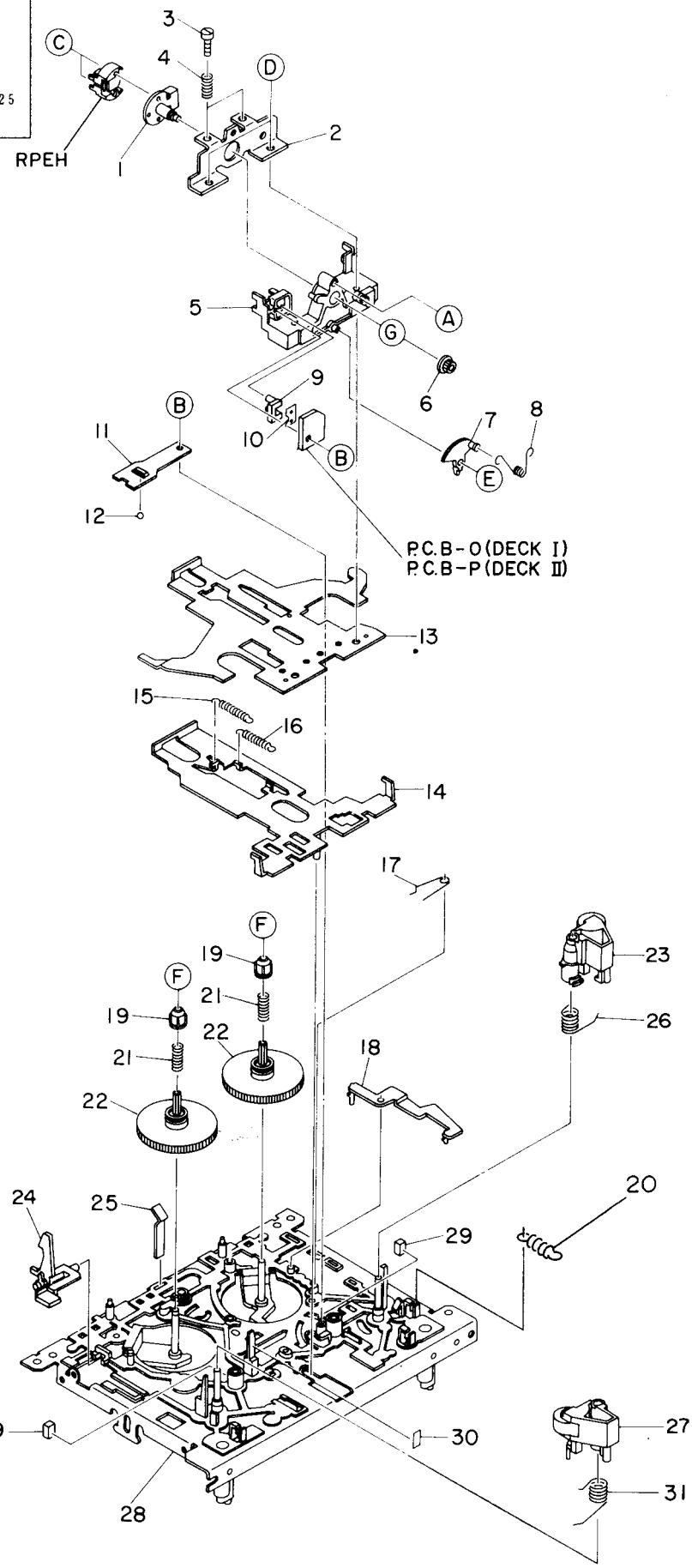
MECHANICAL PARTS LIST

- ※ mark in this part list shows exclusive part.
- ★-mark means less required items availabilities may be limited.
- No availability part is warked with ——— in Part No. list.

Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty
	1-1	82-109-017	CASSETTE WINDOW B Ass'y	※	1
	1-2	★82-196-248	CASSETTE BOX Ass'y F	AD-WX220	2
	2a	★82-161-325	GEAR, OIL-DAMP		2
	1-3	★82-196-225	E-SPRING, C-BOX	AD-WX220	2
	1-4	★82-534-264	GEAR, OIL-DAMP		2
	1-5	★82-196-205	HOLDER C-BOX A Ass'y	AD-WX220	1
	1-6	82-109-016	CASSETTE WINDOW A Ass'y	※	1
	1-7	★82-196-210	HOLDER C-BOX B Ass'y	AD-WX220	1
	1-8	—	SHEET, CIRCUIT BOARD		1
	1-9	—	CUSHION 6-150-5		1
	1-10	★82-146-214	C-SPRING, FRONT EARTH		4
	1-11	★82-104-018	SLIDE KNOB R		1
	1-12	★82-142-015	SLIDE KNOB		3
	1-13	—	GUIDE, LED B		1
	1-14	★82-109-001	FRONT CABINET Ass'y (EXCEPT U)	※	1
		★82-109-027	FRONT CABINET Ass'y (U only)	※	1
	1-15	★84-700-003	PUSH-BUTTON, POWER		1
	1-16	★82-109-203	LEVER EJECT Ass'y	※	2
	1-17	★82-109-037	STEEL CABINET (EXCEPT U)	※	1
		★82-109-040	STEEL CABINET (U only)	※	1
	1-18	—	S CUSHION 25-25-6		1
	1-19	—	REAR PANEL Ass'y		1
	19a	★87-034-958	AC POWER CORD (H only)		1
		★87-034-578	AC POWER CORD (W20U, C only)		1
		★87-034-877	AC POWER CORD (E, Z only)		1
		★87-034-975	AC POWER CORD (K only)		1
		★87-034-892	AC POWER CORD (G only)		1
	19b	★87-085-184	CORD BUSHING (H, W20U, C only)		1
		★87-085-185	CORD BUSHING (E, K, G, Z only)		1
	1-20	★87-085-090	NYLON RIVET		2
	1-21	★87-055-055	FOOT		3
	1-22	—	CUSHION 12-15-12.5		1
	1-23	—	AMP. CHASSIS		1
	1-24	—	BOTTOM CABINET Ass'y		1
	1-25	★87-055-057	FOOT B		1
	1-26	—	WIRE BINDER		1
	1-27	★82-196-212	HOLDER C-BOX C Ass'y	AD-WX220	1
	1-28	82-155-008	KNOB, PLAY		2
	1-29	82-196-026	KNOB, SLIDE VR	AD-WX220	2
	1-30	★82-109-038	SHEET, SLIDE VR	※	2
	1-31	★82-109-213	SHEET B	※	1
	1-32	—	FIBER 6-25		2
	1-33	★82-196-015	BOTTOM CABINET A	AD-WX220	1
	1-34	—	SHEET A		1
	1-35	—	SHEET FILM		1
	1-36	—	PLATE, RADIATE HEAT		1
	1-37	—	SPEC. PLATE (U only)		1

EXPLODED VIEW-2

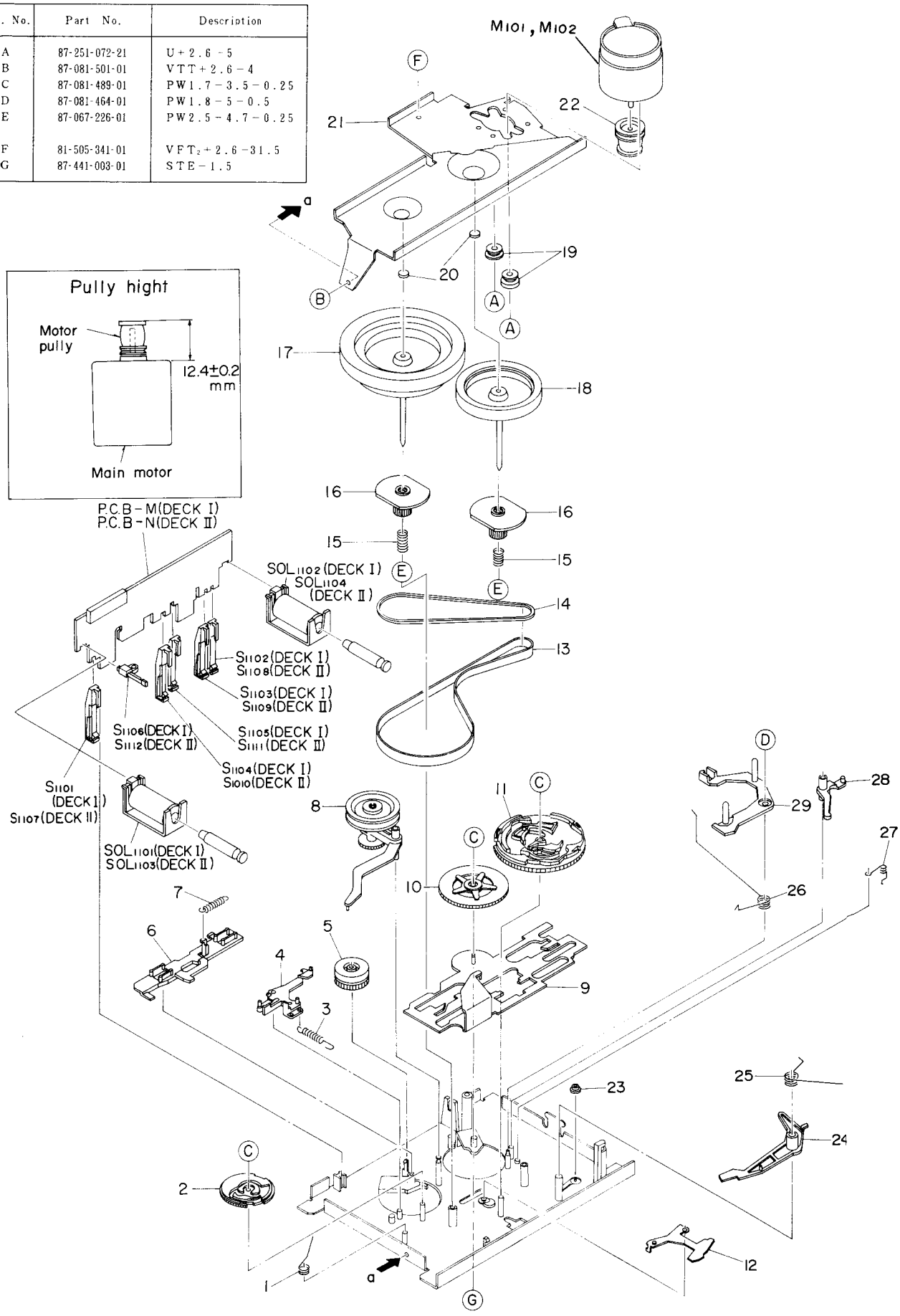
Ref. No.	Part No.	Description
A	87-251-036-21	U + 2 − 8
B	87-351-033-21	VT_1 + 2 − 4
C	87-067-177-01	V + 1.6 − 5.5
D	87-081-504-01	VTT + 2.6 − 10
E	87-067-217-01	VFT_2 + 2 − 6
F	87-081-808-01	PW1.7 − 3.5 − 0.25
G	87-067-105-01	PW3.4 − 8 − 0.5C



Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty	
	2-1	86-513-267	HEAD HOUSING Ass'y		1	
	2-2	★86-517-268	HOLDER, AZIMUTH SCREW		1	
	2-3	86-517-296	AZIMUTH SCREW		2	
	2-4	★86-517-291	C-SPRING, AZIMUTH		2	
	2-5	★86-517-269	HEAD BASE Ass'y		1	
	2-6	86-513-299	GEAR, HEAD HOUSING		1	
	2-7	86-517-273	GEAR, HEAD ROLLING A		1	
	2-8	★86-517-282	T-SPRING, ROLLING		1	
	2-9	★86-517-297	SENSOR LENS		1	
	2-10	—	SHEET, SENSOR LENS		1	
	2-11	★86-517-275	P-SPRING, ACTUATING CHASSIS		1	
	2-12	★87-073-008	STEEL BALL 2.5		1	
	2-13	★86-517-305	ACTUATING CHASSIS R		1	
	2-14	★86-517-308	LEVER MOVEMENT REVERSE Ass'y		1	
	2-15	★86-517-312	E-SPRING, LEVER MOVEMENT		1	
	2-16	★86-517-370	E-SPRING, ACTUATING CHASSIS R		1	
	2-17	★86-517-310	T-SPRING, QUICK LEVER		1	
	2-18	★86-517-258	LEVER, DILECTION		1	
	2-19	86-517-236	STOPPER, REEL PLATFORM		2	
	2-20	★86-513-340	E-SPRING, AUTO BLOCKING		1	
	2-21	★86-517-333	C-SPRING, REEL PLATFORM A		2	
	2-22	86-517-235	REEL PLATFORM		2	
	2-23	86-517-248	PINCH LEVER F Ass'y		1	
	2-24	★86-517-256	LEVER, EJECT		1	
	2-25	★86-517-276	P-SPRING, CASSETTE		1	
	2-26	★86-517-277	T-SPRING, PINCH LEVER F		1	
	2-27	86-517-250	PINCH LEVER R Ass'y		1	
	2-28	—	OUTSERT R Ass'y		1	
	2-29	—	CUSHION, ACTUATING CHASSIS		2	
	2-30	—	SHEET, QUICK		1	
	2-31	★86-517-289	T-SPRING, PINCH LEVER R		1	

EXPLODED VIEW-3

Ref. No.	Part No.	Description
A	87-251-072-21	U + 2.6 - 5
B	87-081-501-01	VTT + 2.6 - 4
C	87-081-489-01	PW1.7 - 3.5 - 0.25
D	87-081-464-01	PW1.8 - 5 - 0.5
E	87-067-226-01	PW2.5 - 4.7 - 0.25
F	81-505-341-01	VFT$_2$ + 2.6 - 31.5
G	87-441-003-01	STE - 1.5



Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty	
	3-1	★86-517-278	T-SPRING, FR CAM		1	
	3-2	86-517-215	GEAR, FR CAM C		1	
	3-3	★86-517-346	E-SPRING, TRIGGER LEVER FR		1	
	3-4	★86-517-257	TRIGGER LEVER FR		1	
	3-5	86-517-238	GEAR, FF		1	
	3-6	★86-517-254	LEVER, SLIDE BRAKE		1	
	3-7	★86-517-284	E-SPRING, SLIDE BRAKE		1	
	3-8	86-517-239	FR PULLEY A Ass'y		1	
	3-9	★86-517-263	SLIDE PLATE R Ass'y		1	
	3-10	86-517-225	GEAR PLAY R Ass'y		1	
	3-11	86-517-336	GEAR MAIN CAM R Ass'y		1	
	3-12	★86-517-306	LEVER QUICK Ass'y		1	
	3-13	86-517-354	MAIN BELT R-2-A		1	
	3-14	86-517-302	BELT FR-2		1	
	3-15	★86-517-323	C-SPRING, FLYWHEEL DC F		2	
	3-16	86-517-317	GEAR, FLYWHEEL DC F		2	
	3-17	86-517-314	FLYWHEEL DC F Ass'y		1	
	3-18	86-517-318	FLYWHEEL DC R Ass'y		1	
	3-19	★86-513-441	COLLAR		2	
	3-20	★86-517-348	FLYWHEEL BEARING		2	
	3-21	—	MOTOR HOLDER DC		1	
	3-22	86-517-360	MOTOR PULLEY R-2		1	
	3-23	★86-517-345	COLLAR, SLIDE PLATE R		1	
	3-24	★86-517-252	TRIGGER LEVER PLAY-A		1	
	3-25	★86-517-280	T-SPRING, TRIGGER LEVER PLAY		1	
	3-26	★86-517-332	T-SPRING, LEVER SWITCH		1	
	3-27	★86-517-281	T-SPRING, SLIDE LEVER R		1	
	3-28	★86-517-253	TRIGGER LEVER PLAY-B		1	
	3-29	★86-517-255	SWITCH LEVER		1	

■ACCESSORIES/PACKAGE LIST

Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty	
	1	★82-109-905	INSTRUCTION BOOKLET	※	1	
	2	★87-032-845	SIEMENS PLUG (HB only)		1	
	3	★87-034-978	CONNECTION CORD, CW-254BSK		2	

AIWA Co., Ltd. Tokyo Japan

Printed in Japan